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A.M.A. SESSION • ATLANTIC CITY, N. J. • JUNE 7-11, 1937

2 SYMPOSIA in JULY "CLINICS"

The *July Number of the "Medical Clinics of North America"* (from Philadelphia) contains *Two Symposia* of 6 clinics each, dealing with subjects of first importance.

The first of these Symposia comes from The Children's Hospital and deals with "Fevers of Obscure Origin in Childhood," including fevers due to upper respiratory infections, those due to lower respiratory infections, those arising from diseases of the urinary tract, those of abdominal origin, those due to disease of the central nervous system, and those due to a long list of miscellaneous conditions. This valuable information is recorded by clinicians of large experience and based on a great wealth of clinical material at one of the foremost Children's Hospitals of America.

The second Symposium deals with "Common Gynecologic and Obstetric Problems of the Family Physician," including sterility; abnormal vaginal bleeding; treatment of habitual abortion; cyanosis of newborn; diagnostic mistakes in gynecology; and the treatment of chronic endocervicitis and vulvovaginitis.

In addition to these two Symposia there are *15 other Clinics of equal importance,* covering diseases of old age, treatment of gonorrheal complications in the male, prostatitis, heart conditions, herpes zoster, relation of diabetes and hypothyroidism, scarlet fever, acute pleurisy in general practice, and many others. This is one of the finest and most practical numbers we have ever published.

Further details in SAUNDERS ADVERTISEMENT—Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

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OBSERVATIONS ON INDUSTRIAL DERMATOLOGY

CHAIRMAN'S ADDRESS

HARRY R. FOERSTER, M.D.

MILWAUKEE

The evolution of industry during the present generation, with its associated changes in the social and economic status of labor, has effected related changes in medical practice in industrial communities. This has been brought about in part by industry itself in the interests of economy, efficiency and safety, and it has been regulated and promoted by governmental agencies in the interests of public health and political control. The management of industrial accidents and diseases today is a modified form of state medicine that is still in a transitional phase, subject to the directional influences of lay, legal and medical groups.

The need of organizing dermatologic information, study and activity in this field resulted in the creation of a committee for that purpose at the last session of the Section on Dermatology and Syphilology. In view of this, some observations on the economic, legal and medical status of industrial dermatology in the United States will be presented.

INCIDENCE

A proper understanding of the scope and importance of industrial dermatology requires a brief review of the economic considerations. Complete and accurate figures on industrial skin diseases are not available, because few states record them and then only when five or more more days of disability for work has occurred. Nondisabling dermatoses, always a large group, are not available for study, except where legally reportable. The following information is authoritative however, having been obtained through the cooperation of public officials of the individual states and the federal government.

The United States census of 1930 listed nearly 49 million individuals in gainful occupations, of whom approximately 4 million were in public and professional service, 5 in domestic and personal employment, 10 in agricultural pursuits and 25 in trade, transportation, communications, and in manufacturing, mechanical and mining industries. It is chiefly this last group of 25 million that is subject to compensation laws, though in some states practically all employees, excepting farm and home help, are covered. Workmen's compensation acts usually apply to all employers of five or more employees.

Read before the Section on Dermatology and Syphilology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

The United States Department of Labor [1] lists 928 hazardous occupations, inclusive of 122 of the more common activities in which skin diseases are prone to develop. There are also numerous unlisted industries and occupations in which skin diseases occur. In the states where figures are available the incidence of dermatoses is uniformly high. In a single year (1934) six states (California, Connecticut, Ohio, Massachusetts, Wisconsin and Missouri) recorded 4,500 cases of disabling dermatoses, or 68 per cent of the total number of occupational diseases. In a three-year period Ohio statistics showed that there was no compensable disability in 61 per cent of the claims filed for occupational skin diseases.

During the first six years that occupational diseases were legalized as compensable in Ohio, 4,400 claims were filed, of which 3,000 were because of skin disease. Dermatitis was stated as the cause of disability in 2,900 claims, and the total group of skin diseases was responsible for a loss of 86,000 work days, in addition to five fatalities and two permanent disability claims.[2]

That the numerical superiority of occupational dermatoses over other industrial diseases may not unduly exaggerate their importance, it should be stated that the total number of compensable occupational diseases constitutes only from 1 to 3 per cent of the total number of compensated occupational injuries and diseases.

For example, in 1934 Massachusetts recorded 35,200 disabling injuries and diseases, of which 700, or 2 per cent, were occupational diseases; 493 cases, or less than 1.5 per cent of the total, were dermatoses.[3]

Schwartz [4] of the United States Public Health Service examined 18,000 workers in rubber industries, oil refineries, dyeing establishments and candy factories and found 235 cases of occupational dermatoses among active employees at the time of examination, an incidence of 1.5 per cent. He believes that more than 1 per cent of the workers engaged in basic industries are annually affected by dermatoses. In a chemical and dye plant with 2,500 employees he observed during one year an incidence of 16 per cent of chemical burns and dermatitis. An even higher disease incidence was observed in work with synthetic waxes and resins; [5] in one factory it reached 50 per cent. This is in line with the observation that the newer the industry and the newer the chemical compounds, the greater will be the number of cases of dermatitis, because of unknown

1. Bull. 582, U. S. Dept. of Labor, Bureau of Labor Statistics Washington, 1933.
2. Special Bulletin No. 1, Industrial Commission of Ohio, 1927.
3. Public Document No. 105, Massachusetts, 22d Annual Report of Department of Industrial Accidents, 1935.
4. Schwartz, Louis: The Incidence of Industrial Dermatoses, January 1936, to be published.
5. Schwartz, Louis: Dermatitis from Synthetic Resins and Waxes, Read before the American Public Health Association, Milwaukee, Oct. 8, 1935.

and unfamiliar hazards, lack of protective measures, and lack of adaptation on the part of the employee to the work.

A careful compilation of statistics on occupational dermatoses should be sought by this section because of its economic value in directing attention to the need of instituting preventive measures against dermatoses and improving their diagnosis and treatment. Massachusetts, Connecticut and Ohio are the only states that have made a satisfactory approach to this subject.

LEGISLATION

Compensation laws are a recent development in this country, and the trend of the times is evident in the broadening of the scope of such laws in eight states in the last two years.

The first provision for compensation of injured employees in the United States was established in 1908 for the federal civil service. In 1911 the Wisconsin legislature established the first workmen's compensation act to deal with industrial injuries.[6] In rapid order several other states enacted similar laws and since then there has been a gradual increase in such enactments.

Our compensation laws were based on older European "codes" but have become broader in their scope and have been more liberally interpreted by commissions and courts, and, in the opinion of Jones,[7] they "have been much more precipitate, ill considered, diversified and variant." Jones states also that "under the compensation laws of this country, differing from nearly all foreign precedents, claims for occupational disease, where covered by such laws, are determined by laymen, everywhere regardless of the weight of medical evidence, the claimant receiving the benefit of doubt if there be any medical opinion or testimony in favor of the validity of a claim."

Workmen's compensation legislation in this country applied originally to occupational injuries only, and in more than twenty-four states this restriction still holds good, though a number of states have broadened their interpretation of the word "injury." Eight states (Colorado, Georgia, Iowa, Montana, Maryland, Pennsylvania, Texas, and Washington) specifically exclude occupational diseases from their compensation provisions, though a few exceptions are made.

In 1919 the Wisconsin legislature defined "injury" under the workmen's compensation act as "mental or physical harm caused by accident or disease," since which time it has been necessary only to establish an occupational origin for a disease to legalize a compensation claim in Wisconsin.

Eight states (Alabama, Maine, Nevada, Oregon, Tennessee, West Virginia, Virginia and Rhode Island), without specific laws regarding occupational disease, recognize the compensability of dermatoses when caused by or aggravated by injury.

The industrial commission of Nevada has allowed compensation for dermatitis when it could be reasonably interpreted that the dermatitis arose from an injury or an accumulation of injuries or from trauma caused by continued irritation. The Oregon state industrial accident commission holds that "occupational diseases are not compensable since they are not due to injury by accident received through violent or external means," as defined by the law, and yet the courts of Oregon have compelled payment of compensation in a large number of cases of dermatitis from poison oak, ivy, hemlock, spruce, hop and fruit on the theory that the exciting cause of dermatitis in such cases is an abrasion or minor injury.

Six states (Kansas, Ohio, New Jersey, Nebraska, North Carolina and Minnesota) specifically restrict compensation for occupationally acquired dermatoses to listed or scheduled occupations, listed diseases, or contacts with listed substances. This has resulted in errors of omission and commission and in certain absurd rulings.

New Jersey has compensated for dermatitis when it could be shown that "the worker had contracted an occupational substance covered by the occupational disease act." Minnesota legalizes compensation for dermatitis from African boxwood and recognizes only twenty-two other occupational diseases and causes of occupational disease. In Nebraska compensation is limited to diseases in the lead and zinc industries, though recognition is given to the aggravation of preexisting disease by accidental injury. Ohio's schedule of twenty-one occupational diseases is quite inclusive and meets the major industrial disease problems of that state.

Arkansas and Louisiana have no compensation laws for either injury or disease.

The 1935 New Hampshire legislature provided for a commission of three physicians, three representatives of labor and three representatives of industry, to study the compensation laws and occupational disease situation in that state. Michigan, Idaho and Maryland have provided for similar investigations.

Eight states (Illinois, California, Connecticut, Massachusetts, North Dakota, Missouri, New York and Wisconsin) and Hawaii and the Philippines have what is called "blanket legislation." New York joined this group in 1935 and Illinois in 1936, and the Rhode Island legislature has a "blanket provision" under consideration at this time. The "blanket" provides compensation for any disabling disease, dermatosis included, arising out of an individual's occupational activities. Predisposition to dermatitis is no bar to compensation in such cases.

In Missouri any skin disease directly traceable to an employee's work is compensable under the law, "provided both employer and employee are operating under that particular phase of the law." In Connecticut, occupational disease is defined as "a disease peculiar to the occupation in which the employee was engaged and due to causes in excess of the ordinary hazards of employment as such." Interpretations have been liberal. The Connecticut law also states that, in case of aggravation of a preexisting disease, compensation shall be allowed only for such proportion of the disability as may be reasonably attributed to the injury on which the claim is based.[8]

There is much to be said both in commendation and in criticism of our laws, as regards their provisions, interpretation and enactments. Under both schedules and blanket provisions the opportunity exists for injustice to both employer and employee, and the variability of the laws in different states, and the greater variability and uncertainty of their interpretation by the courts constitute a constant hazard to the financial security of some industries and their insurance carriers. Legal provisions for nondisabling injuries and diseases are usually lacking or vaguely defined.

6. Bulletin Industrial Commission Wisconsin, 1934.
7. Jones, F. R.: Industrial Med. 4: 222 (April) 1935.
8. Bull. 13, Connecticut Workmen's Compensation, 1935.

The recognition of compensability of industrial injuries, which are sometimes the result of carelessness by the worker, and the denial of compensation for occupationally acquired disease, for the acquisition of which the employee is usually not responsible, are legal anachronisms that should not be permitted to exist. The same criticism applies to the restriction of compensation to listed or scheduled occupations, diseases or substances, it being recognized by dermatologists that almost any trade or occupation, and any irritant, may be the source of a dermatosis in a susceptible individual. The important legal consideration is obviously not the type of occupation, nor the nature of the irritant, but the relationship of both irritant and occupation to the acquisition or aggravation of the dermatosis. "Schedules" provide a legal crutch that may be used to bar a legitimate award for compensation or to support an unjust claim. It permits the lawyer to settle the question of compensability on the basis of names, whereas it should be the physician who determines the liability on a basis of etiology and the law that decides the case on the evidence presented.

In a recent article on the medicolegal aspects of occupational dermatoses, Sulzberger[9] has directed criticism at laws that permitted the awarding of compensation without reasonable proof of the causal connection between the occupation and the existing dermatosis.

MEDICAL SUPERVISION

In reviewing the compensation laws of the states, I have been impressed with the almost complete absence of provision for participation by the medical profession in the designing and enactment of the various laws and the provisions for their application and interpretation.

The industrial accident commissions of California, Iowa, Nevada and Washington have medical directors or advisers. In Massachusetts[10] the industrial accident board submits claims for compensation to a board of three physicians, known as industrial disease referees, who are individually selected for each case from a list of registered physicians furnished by the state board of medical registration. In all other states, lay boards have exclusive jurisdiction over compensation and pass judgment on controversial cases.

As this question applies to dermatology, I am heartily in accord with the opinion expressed by Sulzberger[9] "that compensation laws will more adequately do justice to occupational dermatoses only when they are formulated with the advice and collaboration of competent dermatologists." I also agree with him "that an employee be entitled to compensation only when his occupation can be proven, beyond reasonable doubt, to be, directly or indirectly, a causal or contributory factor in the production of the dermatosis, and that compensation be commensurate with the degree to which the occupation is responsible for the skin disease."

State boards of health, concerned primarily with disease prevention, have supervision over industrial accidents and disease in only eight states.

Physicians in Ohio and Connecticut are required by law to report to the director of health all diseases and disabilities contracted as a result of the nature of the patient's employment. The Connecticut health department has a bureau of occupational diseases which makes surveys and field studies, secures and compiles reports of occupational diseases, provides consultation and information for physicians and industry, and renders reports of its conclusions and recommendations to industry.[11] Michigan has just created a department of industrial hygiene within its health department.

There appears to be a very definite need for closer cooperation between legislative bodies and organized medicine for disease prevention and control, the realization of which should not be difficult in view of common aims. The United States Public Health Service and the respective state boards of health, not being engaged in competitive medical practice, appear to be the logical bodies for such cooperation and could do much toward the accumulation of valuable data, the dissemination of information and the endorsement of remedial legislation in the field of industrial dermatology. This section may safely sponsor a program along these lines.

Considering the advance that has been made in many states toward the recognition of occupational diseases, when previously only injuries were judged compensable, we may anticipate the recognition of the right of compensation of all industrial diseases in all states, with consequent elimination of archaic schedules or "listing." I believe that we, as a representative dermatologic group, may advisedly endorse the type of workmen's compensation legislation now prevailing in those states with "blanket legislation," recognizing however the dangers inherent in such liberal laws, and the need of certain modifications and restrictions. I believe that some form of medical control over occupationally acquired diseases should be legally provided and that occupational dermatoses should be under dermatologic supervision. This section should recognize the desirability and need of dermatologic direction of legislative procedure pertaining to dermatoses and should take action as spokesman for this specialty.

INTERPRETATION

The practice of defining occupational diseases by naming or specificially describing them for "listing or scheduling," and of restricting compensation to diseases falling in such classifications is a European custom, and it is favored by insurance carriers in this country. The chief arguments in its favor are based on an apparently smaller margin of error in diagnosis and compensation awards, because of restriction of liability to industries in which there is a particular disease hazard. It is not however in the best interests of the worker, and the increasing complexity and development of industry constantly introduces new factors in disease production that would require frequent revision of schedules through legislative action. "Blanket laws," on the other hand, penalize industry in that under their provisions many cases recognized as occupational dermatoses are not due, or not solely due, to the industry but result from some act or predisposition of the patient foreign to the employment.

The wide abuse, through incompetent medical and legal interpretations, observed to follow progressive liberalization of industrial disease legislation, is not a valid argument against such legislation but speaks for the greater need of expert diagnosis and experienced medical management.

As the responsibilities of the physician increase, our responsibilities as dermatologists involve the extension and unification of dermatologic knowledge and opinion. James C. and C. J. White, C. Guy Lane, Knowles, Cole,

9. Sulzberger, M. B.: Am. J. Surg. **30**: 531 (Dec.) 1935.
10. Massachusetts Department of Industrial Accident and Workmen's Compensation, General Laws, chapter 153, 1935.
11. Bulletin Connecticut State Health Dept. Major Activities, 1936. Gray, A. S.: Importance of Industrial Hygiene, J. A. M. A. **105**: 1157 (Oct. 12) 1935.

Hazen and Pusey were among the pioneers in this field in the United States.[12] Recent valuable contributions have been made by Downing,[13] Eller and Schwartz,[14] Osborne and Putnam,[14a] and other members of this section, and in Europe particularly by R. Prosser White [15] and by Ullmann, Oppenheim and Rille.[16]

Occupational skin diseases actually constitute only a small percentage of all skin diseases, and it should be evident that a broad knowledge of dermatology is essential to maintain a proper balance in the interpretation of cases and the evaluation of observations. In the practice of most dermatologists with experience in industrial disease, occupational dermatoses aggregate less than 10 per cent of the total practice.

My associates and I recorded over 1,400 cases of occupational dermatoses in private practice in fifteen years, an average of 5 per cent.

Preexisting and coexistent dermatoses must be properly evaluated as regards their part in the development or prognosis of an occupational dermatosis. A judicial outlook in arriving at a diagnosis in a case with occupational implications is important, as emphasized by O'Donovan.[17] All the evidence must be carefully weighed and too much credence must not be placed in the history furnished by the patient, which may be at variance with the facts. A general knowledge of factory conditions and a specific knowledge of the individual's work and working environment is of value and sometimes is necessary for diagnosis.

One of the chief causes of controversial legal procedure in certain types of dermatoses is the failure to obtain early expert dermatologic examination and treatment. Insurance carriers must become cognizant of the economic importance of the early observation and care of certain industrial cases by the specialist and of the need of closer cooperation between practitioner and specialist.

CAUSES

The etiology and symptomatology of occupational dermatoses have been exhaustively discussed in previous papers [18] and will not be elaborated on at this time.

The majority of industrial dermatoses in this country are cases of contact dermatitis and are due to acids, alkalis, caustics, oils, greases and solvents. The causes as well as the incidence exhibit great variability in different states, dependent on the types of industries and the preponderance of industrial activities.

Schwartz's [4] investigations in 1935 disclosed that the majority of occupational dermatoses were caused by alkalis and petroleum derivatives in New York, by lime, cement and plant poisons in Missouri, and by plant poisons and by mercury used in the hat industry in Connecticut, while in Ohio the majority occurred in the rubber industries and in workers with oils and cutting compounds.

A nonoccupational origin should always be sought for in cases of supposed trade dermatitis, it being too commonly assumed that a dermatitis, particularly a dermatitis venenata, has resulted from the work if the occupation is one in which dermatitis is prevalent. A potent cause of occupational dermatitis that is often overlooked and that is entirely preventable is the use of turpentine, benzine and abrasive soaps in the removal of paint, grease and dirt.

DERMATOMYCOSES

Fungous and bacterial infections and allergic conditions represent some of the most important diseases that frequently cause confusion in diagnosis and prognosis. Of the dermatomycoses, epidermophytosis and moniliasis are of sufficiently frequent occurrence in industrial workers to present an important problem in diagnosis. Many laborers have intertriginous dermatitis of the toes, due to sweating and lack of proper hygiene, and this condition, when associated with a dermatitis venenata of the hands, may be mistaken for an epidermophytosis with a phytid reaction. A diagnosis of fungous infection in an industrial worker should therefore be made with proper reservations, subject to microscopic or cultural confirmation or the results of an adequate therapeutic test. Direct fungous infection of the hands is less common and is more readily differentiated from dermatitis venenata and eczematoid dermatitis than the more frequent phytid reaction. While admitting the importance of excluding fungous infections in the differential diagnosis of dermatitis venenata, and while recognizing the possibility that such infection may predispose to the acquisition of a dermatitis venenata or may complicate an occupational dermatitis through secondary infection, I believe this issue has been adequately emphasized in the past not to require elaboration in this paper.

INFECTIOUS ECZEMATOID DERMATITIS

The recognition of infectious eczematoid dermatitis is always important, and particularly in those states that restrict compensation for dermatoses to conditions arising out of industrial injuries. This disease is frequently observed both as a direct complication of injury and as the result of improper medical management of injuries. It is responsible for prolongation of disability and not infrequently for the development of a generalized, resistant, eczematoid dermatitis.

DERMATITIS VENENATA AND CONTACT ALLERGY

Allergy plays a predominant rôle in industrial dermatology and accounts for some of the most difficult problems in this field. The majority of occupational dermatoses are cases of dermatitis, and the largest number of these, and the most clearly defined, belong in the dermatitis venenata or contact dermatitis group. Some of the cases of the latter group are examples of direct toxic action of chemical irritants on normal skin; others are cases of epidermal allergy, and the distinction between the two is not always clear.

In those cases of contact dermatitis due to allergic factors the allergy is usually, if not always, acquired, and the shock tissue is primarily the epidermis. This allergic state may be limited to certain areas of the epidermis. According to Coca [19] there is probably present in the sensitized epidermal cells an antibody-like substance but there is apparently no antigenic function in the excitant, which is an allergen, and no antibody-antigen reaction. Max Michael [20] considers

12. Foerster, H. R.: Industrial Dermatoses, Arch. Dermat. & Syph. **17**: 585 (May) 1928.
13. Downing, J. G.: New England J. Med. **213**: 358 (Aug. 22) 1935.
14. Eller, J. J., and Schwartz, Louis: New York State J. Med. **35**: 951 (Oct. 1) 1935.
14a. Osborne, E. D., and Putman, E. D.: Industrial Dermatoses, J. A. M. A. **99**: 972 (Sept. 17) 1932.
15. White, R. P.: Occupational Affections of the Skin, ed. 3, New York, Paul B. Hoeber, 1928.
16. Ullmann, Oppenheim and Rille: Die Schaedigungen der Haut durch Beruf und gewerbliche Arbeit, Leipzig and Hamburg, Leopold Voss, vols. 1 and 2, 1915-1925.
17. O'Donovan, W. J.: J. Indust. Hyg. **16**: 223 (July) 1934.
18. Foerster.[12] Downing.[13] Eller and Schwartz.[14] Downing, J. G.: J. Indust. Hyg. **17**: 138 (July) 1935.
19. Coca, A. F.: Tr. International Dermatologic Congress, Budapest, 1935.
20. Michael, Max: Klin. Wchnschr. **10**: 2180 (Nov. 21) 1931.

pure epidermal allergy rare in occupational disease and believes that altered cutaneous reactions of allergic type occurring through occupational sources cannot result from epidermal contact alone but involve a vascular mechanism.

THE PATCH TEST

It is in these cases of contact dermatitis that the eczema or patch test is of value, but it must be emphasized that this test is not a short-cut to dermatologic knowledge and it should not be made the basis of a diagnosis. Correctly applied and intelligently interpreted, it may be very useful, but its widespread adoption for diagnosis, its loose acceptance by insurance companies, and the likelihood of faulty interpretations should result in the application of proper restrictions.

The most reliable test is that of actual working conditions, but this is usually contraindicated and is chiefly valuable in retrospect, as indicated at times by the history. Occupational trauma, sweating at work, and repeated exposures over periods of weeks and months are some of the factors in industry leading to skin sensitization that cannot be duplicated in patch testing.

The hypersensitivity that resulted in a dermatitis is often confined to the area of dermatitis, and a patch cannot be applied to that site until long after recovery. If the material used in a test is in stronger concentration than existed in the occupational exposure or is in contact over a more prolonged period of time, or if it is applied to an area of localized hypersensitivity, a false positive reading may be obtained. The opposite condition may result negatively. In cases of positive patch test reactions, negative control tests in normal subjects, made under identical conditions, are important. Schwartz has pointed out that after a person has recovered from a dermatitis he may have become immune to the causative substances and yield a negative patch test, and also that if a polyvalent sensitivity has been developed the tested individual may react positively to a great variety of test materials not concerned in the development of the dermatitis.

Field and Sulzberger [21] have recently shown that the result of a patch test may depend on the site chosen for the testing and on the time of application of the test or phase of sensitivity of the individual, and they warn against basing positive conclusions on one or a few patch tests, particularly if applied at the same time. Their experiments showed that variations in response to testing seemed to depend on chronological fluctuations in degree of sensitivity, which varied greatly at different times in one and the same area, and they also showed that certain irregularly disseminated circumscribed skin areas seemed consistently less sensitive than others.

ATOPIC DERMATITIS

In atopic dermatitis (allergic eczema) the primary shock tissue is the vascular structure of the cutis, and the epidermis becomes secondarily involved. There appears to be a hereditary abnormality of the cutaneous shock tissue in this group and the affected individual may possess a polyvalent sensitivity that results in acute attacks of dermatitis or in aggravations of existing dermatitis, following irritant occupational exposures.

Commonly developing in infancy or childhood and then becoming latent, to appear again in early adult life, atopic dermatitis may readily be mistaken for occupational dermatitis. Many of these cases recur or exacerbate at an age when young men and women leave school to enter industry, and this frequently occurs in autumn, when seasonal factors such as pollen exposures and cold weather may aggravate atopic dermatitis.

Even when it exists, a history of atopy may be difficult or impossible to obtain, particularly from a foreign-born laborer. The worker will admit a history of occupational aggravation more readily than he will disclose a preexisting dermatitis, hay fever or asthma, and if he had an infantile eczema he probably does not know it. Exposed surfaces of the upper extremities, face and neck are usually the sites of predilection for both atopic dermatitis and occupational dermatitis. After either condition has been active for weeks or months it defies dermatologic acumen to determine the etiology. A hereditary atopic dermatitis, aggravated by irritant occupational contacts, may yield a positive patch test to occupational materials and thus result in further confusion.

Disabling chronic dermatitis, intractable to appropriate treatment and showing no tendency to recover after prolonged removal from the supposed occupational cause, should always be looked on with suspicion as possibly having been originally a nonoccupational allergic condition.

CHRONIC ECZEMA

Cases of eczematoid dermatitis in which the primary attack was due to a specific occupational sensitization, and in which frequent relapses or recurrences resulted in the development of a chronic eczema that continued indefinitely after discontinuance of employment, are the result of a gradually developed nonspecific polyvalent cutaneous sensitivity to substances come in contact with in daily life. Such cases may be further complicated by secondary bacterial and fungous infections and result in confusion with Coca's infectious allergic dermatitis.

Some cases of intractable chronic eczema of occupational origin, continuing indefinitely after removal from work, occur in elderly employees, of impaired or mediocre physical stock, with obscure foci of infection, degenerative changes in vital organs or defective metabolic processes, all of which contribute to the prolongation of dermatitis and disability.

Cases of this type are usually not seen by the dermatologist until it is too late to determine the etiology with certainty or until polyvalent sensitivities and other complications have rendered them intractable to treatment. Whether or not a case of this nature originated as an occupational dermatitis, the employer or insurance carrier can no longer escape liability. Obviously there is liability, but likewise not sole responsibility, of the employer.

How are these cases to be interpreted and managed? Probably a legal limit should be established for total disability payments in such cases, based on an appraisal of the occupational factor, though from a humanitarian point of view these patients should be cared for as chronic invalids. In several states where public funds are used to meet occupational disability payments the problem can be solved by the establishment of pension funds. Where private corporations and private insurance carriers hold sole financial responsibility for such cases, the present controversy over awards will continue until the laws are changed. In the adjustment of such cases the medical expert will play a responsible rôle, requiring an intimate knowledge of medical interpretation and analysis.

21. Field, Hans, and Sulzberger, M. B.: J. Allergy 7: 139 (Jan.) 1936.

CONCLUSION

Since the dermatologist possesses the basic knowledge essential for the proper interpretation and solution of many problems in skin diseases confronting industry, he should prepare himself to cope intelligently with them, in cooperation with others, and he should be called on to exercise the functions of an expert.

The industrial dermatoses committee of this section has before it the opportunity of clarifying and unifying dermatologic knowledge and opinion on industrial dermatology, and in that way of further advancing industrial medicine and the proper participation of individual dermatologists in such progress.

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NEURALGIAS AND EAR SYMPTOMS

ASSOCIATED WITH DISTURBED FUNCTION OF THE TEMPOROMANDIBULAR JOINT

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When this group of pain symptoms and deafness were proposed [1] in 1933 as comprising a symptom complex regularly associated with destruction of the mandibular joint, it was considered as not rare but of infrequent occurrence. Deductions were made from cases presenting an edentulous mouth and extensive destruction of the joint, showing wide overclosure of the jaw. In the first small group there appeared patients with unilateral loss of molar support, however, which demonstrated the pain qualities more clearly and responded more promptly to the proposed solution of the problem; that is, the replacement of adequate molar support on the affected side.

During a two year period the study of these cases was continued, and they were drawn not only from a group referred as sinus and ear cases but also from those being studied in dermatology, internal medicine and neurosurgery. The number of proved cases having reached 125, their occurrence may now be considered very common. It was shown that ear symptoms predominate in patients with edentulous mouths whose symptoms develop slowly as a pressure effect on eustachian tubes, and that pain symptoms, with or without herpes of the external canal and buccal mucosa, predominate in the cases of natural malocclusion or malocclusion from loss of molar support on one side only. A few patients with apparently perfect natural teeth were definitely relieved by extension of the joint the very minimal amount of 2 to 4 mm., accomplished by the use of an overlay on the molar teeth. A majority, eighty-nine patients, were above 40 years of age, the largest group being between the ages of 50 and 60 years. Each decade of life results in more wear of the natural teeth or loss of them, with the potential chance of destruction of the mandibular joint.

Some or all of the following symptoms were regularly found associated with these cases of malocclusion:

The ear symptoms were intermittent or continuously impaired hearing; stopping or "stuffy" sensation in the ears, marked about meal time; tinnitus, usually "low buzz" in type, less often a snapping noise while chewing; dull or "drawing" pain within the ears, and dizziness, with nystagmus.

The pain and irritative symptoms were headache about the vertex and occiput and behind the ears, typical site of posterior sinus pain, increasing toward the end of the day (atypical sinus history and suggestive of eye headache); burning sensation in the throat, tongue and side of the nose; dry mouth with almost total absence of saliva and, rarely, excessive saliva; occasional herpes of the external ear canal and buccal mucosa, most marked on the edentulous side.

The chief function of the jaw being mastication, it is equipped with powerful muscles, the masseter, the temporalis, the pterygoideus internus, all of whose function it is to close the jaw. Acting as openers are the factors of the external pterygoid action, the action of the digastric muscle and the natural weight of the jaw. By complicated interaction, the jaw is fixed to aid in the act of swallowing, moves to a varying extent to accommodate the production of speech, and adapts itself to great variations produced by densities of food, yawning, laughter, and so on. The extent of normal opening of the jaw is controlled by the sphenomandibular ligament, the stylomandibular ligament and the short temporomandibular ligaments making up the capsule of the mandibular joint. The latter being weak at the forward aspect, extreme looseness sometimes permits the condyle to slide entirely beyond the articular eminence, producing subluxation of the jaw. The extent of closure of the jaw is determined by the teeth. Since most of the power of the muscles of mastication is applied to the posterior third of the jaw, most of the impact of chewing is taken by the molar teeth, very little being applied in the incisor district, the mandibular joint acting only as a weak hinge or guide to this movement.

It is not surprising therefore, when molar teeth are missing or the vertical dimension of the jaw is abnormally reduced by shrinkage of the alveolar ridge beneath plates or by grinding away of the natural teeth, that the mandibular joint should assume an unaccustomed burden from this district and much of its structure destroyed. When this occurs some of the force is thrown into the incisor region, but most of it is referred upward to the mandibular joint in direct line of the vertical dimension of the jaw. Proper regard for this function is the basis for testing the patient for the mandibular joint "syndrome" and is the basis on which the dentist proceeds to restore the position of the jaw.

The most common symptom observed was headache. Sixty-three patients had regular daily headache, more or less severe, forty-nine of whom described the pain as vertex, occipital and about the ears. Twelve had only supra-orbital pain. All these presented themselves or were referred for study as sinus cases. Almost all showed more or less sinus infection, for which proper treatment was given. Thirteen volunteered the description of pain as increasing toward the end of the day. This was typical of eyestrain headache, and no eye lesions were found. The distribution of pain was quite typical of posterior sinus disease.

In a previous report,[1] anatomic reasons were advanced for the pain; i. e. (1) erosion of the bone of the glenoid or mandibular fossa, and impaction of the condyles against the thin bone separating them from the dura; (2) irritation by the uncontrolled movement of the condyles backward or mesially, of the auriculo-

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Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Costen, J. B.: A Syndrome of Ear and Sinus Symptoms Dependent upon Disturbed Function of the Temporomandibular Joint, Ann. Otol., Rhin. & Laryng. **43**: 1 (March) 1934.

temporal nerve, which passes intimate to the mesial side of the capsule between the condyle and the tympanic plate to distribute over the temporal and vertex region; (3) production of reflex pain and sensory disturbance in the various connections of the chorda tympani nerve, the condyle irritating it where it emerges from the tympanic plate at the mesial edge of the glenoid fossa through the petrotympanic fissure.

Reasoning from the fact that the mandibular joint capsule is weaker on the mesial side and the glenoid fossa is protected laterally by the zygoma, it was assumed that the condyle of the joint most affected would move mesially to impact the nerves, and the condyle of the opposite side would adapt itself downward or forward. It was also assumed that in unilateral loss of teeth the joint on the unsupported side would suffer most destruction. Observation of the jaw movements of this type of case showed that the patient attempts to occlude the remaining teeth by weaving the jaw laterally toward them. The lower teeth slip beyond the upper on occlusion, and the condyle on the unsupported side is pulled mesially and upward by the chewing muscles. Exactly the same thing happens when the natural teeth are worn or badly occluding and fail to take the impact of the chewing movement. The joint on the poorly supported side is destroyed. Its condyle slips mesially on closure, impacts the nerves and initiates pain on the same side. Twenty-one cases fall into this group, and the various pains invariably occur on the side in which proper molar support is entirely lost. The joint on the same side is usually quite tender to palpation internally and functions with a crunching noise. Ear symptoms, such as stopping and deafness, are notably absent in these unilateral neuralgia cases.

Glossodynia, or burning tongue, has been described by Butlin,[2] Engman,[3] Dean,[4] Sluder[5] and numerous others. Frequent reference is made to the complaint in cases of pernicious anemia, glossopharyngeal neuralgia and gastric diseases. Dean, and later Sluder, found that some of the cases could be relieved by injection of the nasal ganglion.

Twenty-two patients in this series described pain and sensory disturbances about the lateral pharyngeal wall and tongue. The emergence of the chorda tympani nerve at the mesial edge of the mandibular fossa was suggested[1] to account for sensory disturbance in the tongue, when irritated by the loose movement of the condyle mesially. Irritation of the auriculotemporal nerve, as described, may produce pain in the remaining branches of the mandibular nerve, one of the largest of which is the lingual nerve, supplying sensation to the anterior two thirds of the tongue. The afferent fibers represented by the chorda tympani nerve are actually the sensory part of the facial nerve and end, in part, in the same nucleus as does the ninth or glossopharyngeal nerve. These fibers are considered (Piersol) "as an aberrant strand of the glossopharyngeal." Under other circumstances of study these cases may have been regarded as glossopharyngeal neuralgia; the description of glossopharyngeal neuralgia usually is that it is a paroxysmal pain referred to the region of the fauces and lateral wall of the pharynx, often radiating up to the ear on the affected side; case reports state that the trigger which starts the pain is the act of swallowing. With the mouth closed, as in swallowing, the mechanism for irritating both the chorda tympani and the auriculotemporal nerves by the condyle is ideal.

The evidence is convincing that malocclusion and destruction of the mandibular joint is important in the etiology of glossopharyngeal neuralgia. It is clear, since eighteen of the twenty-two cases of burning tongue were completely relieved by reposition of the jaw, that this is the principal etiologic factor of glossodynia of peripheral nerve origin.

A test was made in one patient who had complained of a copper and salt taste along the left border of the tongue for a period of four months, by wearing a cork pack 12 mm. in thickness within the left molar spaces for forty-eight hours. She was completely relieved and the case was classified as an example of irritation of the left chorda tympani. She was sent to the dentist but refused to have a denture because she considered the condition entirely cured.

Herpes and salivary disturbance appear to be irritative phenomena. These occur frequently in the pain group and are invariably relieved when the pain factors are successfully removed. Salivary disturbance, usually inhibition with excessive dryness of the mouth, is constantly found in the cases presenting burning tongue.

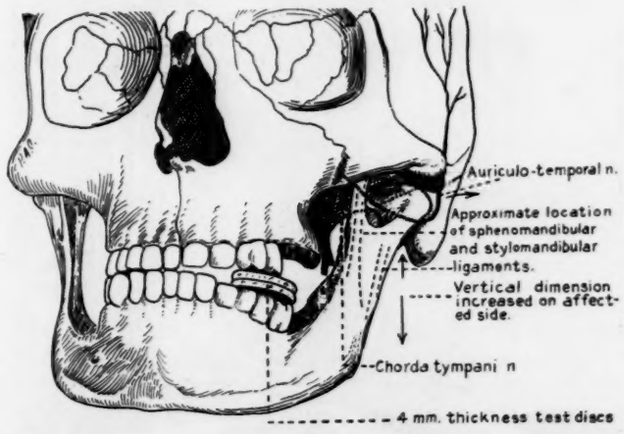
Auriculo-temporal n.
Approximate location of sphenomandibular and stylomandibular ligaments.
Vertical dimension increased on affected side.
Chorda tympani n
4 mm. thickness test discs

Fig. 1.—Manner of testing suspected destruction of the mandibular joint. The two 2 mm. disks are worn within the jaws an arbitrary period of from two days to one week. This schema shows the effect on the joint of widening the vertical dimension, moving the condyle away from proximity to the nerves.

Although herpes is established as a toxic disease of the ganglions of the posterior nerve roots, associated with a vesicular inflammation of the skin of the corresponding areas, a mild type is found associated with these cases not occurring in the presence of acute infection. There were twenty-one patients in the series, all in the pain group, who described vesicular eruption about the external canals, the corners of the mouth, the hard palate or the buccal mucosa. In fifteen cases that were followed up this was relieved along with the other complaints. Hunt[6] has pointed out a characteristic symptom complex: deep seated pain in the ear and mastoid, herpes of the auricle, the external auditory canal, and the tonsillar region, and also facial paralysis, in connection with inflammation of the geniculate ganglion. He described certain cases presenting herpetic lesions about the external auditory canal, and

2. Butlin, H. T.: Diseases of the Tongue, London, Cassell & Co., 1900, p. 81.
3. Engman, M. F.: Glossodynia, Burning Tongue, Arch. Dermat. & Syph. **1**: 137 (Feb.) 1920.
4. Dean, L. W.: The Control of Glossodynia, South. M. J. **15**: 856 (Oct.) 1922.
5. Sluder, Greenfield: "Lower Half Headache" (Neuralgic) of Nasal Origin: Glossodynia, Otalgia, Nausea, Paragesia, Vertigo, Scotoma, Photophobia, Rhinorrhea and Asthma as Isolated Related Phenomena, J. A. M. A. **79**: 1898-1899 (Dec. 2) 1922.
6. Hunt, J. R.: On Herpetic Inflammation of the Geniculate Ganglion. A New Syndrome and Its Complications, J. Nerv. & Ment. Dis. **34**: 73-96 (Feb.) 1907.

with pain symptoms but without facial palsy. He classed these as of the type of zoster of the auricle, long before termed idiopathic; these were accounted for by earlier observers favoring the neuritic theory of herpes zoster, by ascribing the skin lesions on the auricle to a neuritis of the auriculotemporal branch of the fifth nerve. The favorable reaction of the herpes group of this series to repositioning of the jaw is proof that their source is pressure irritation of the auriculotemporal and chorda tympani nerves by uncontrolled movements of the condyle and is transmitted to the ganglions. It would explain the idiopathic group referred to in Hunt's series, as well as the twenty-one cases just mentioned.

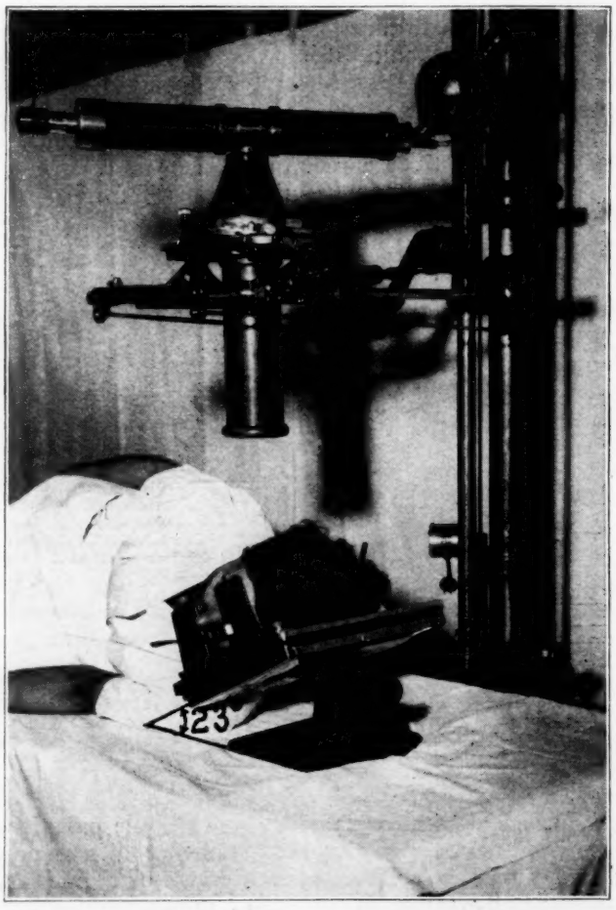

Fig. 2.—The Sproull position is used in making films of the temporomandibular joints. The patient's head is tilted 23 degrees toward the feet. A small cone and a fine focus x-ray tube are necessary for proper detail. Exposure factors for an average adult are 66 kilovolts, 20 milliamperes, three seconds and 28 inch target-film distance. (Courtesy Drs. Sherwood Moore and Wendell G. Scott, Edward Mallinckrodt Institute of Radiology, St. Louis.)

The presence of salivary disturbance in the glossodynia group was not investigated until the return of saliva was described voluntarily by the tenth patient of that series. There have been twenty-two patients with glossodynia to date, and, among the last twelve, four have described constant dryness of the mouth. In these four the saliva has returned abundantly during the test treatment. Another, in the glossodynia group, with unbearable pain, had excessive saliva, which became normal after relief of pain. Another case, not in the painful class, had been diagnosed parotid tumor for twenty-three years. The gland remained enlarged and hard regularly, and at intervals softened, with discharge of a large amount of saliva into the mouth. Increase of vertical dimension of the jaw 3 mm. on the affected side in this case was followed by return of the gland to normal in four months. A direct parallel seems to exist between these clinical observations and some earlier experimental work on salivary secretion. Although the results of Heidenhain's [7] experiments (1878), of stimulating the chorda tympani with weak induction shocks, showed that sympathetic impulses augment salivary secretion, other records showed an opposite effect. Czermak [7] (1857) had shown that stimulation of the chorda tympani inhibited secretory activity of the submaxillary gland. Mislawsky and Smirnow (1893) [7] "observed a similar inhibitory effect of sympathetic stimulation on the secretory activity of the parotid gland brought about by stimulation of the auriculotemporal nerve." When the factors of irritability of the gland cell as well as the effect of vasomotor change on the glands are recognized, one finds that the relationship of irritation of the chorda tympani and auriculotemporal nerves by the condyle to changes in salivary secretion is consistent.

For x-ray study, plates of the joints are taken with the mouth closed and open. Erosion of the head of the condyle on its anterior face, and to a less extent of the articular eminence, is the usual finding. Evidence is noted of fibrosis of capsule structures and of wide excursion of the condyle forward when the joint is greatly loosened. These x-ray examinations correspond with the pathologic studies of the joint by Dufourmentel,[8] Axhausen [9] and Steinhardt.[10]

A few of the patients with neuralgia complained of tinnitus of a mild grade, but the majority of the ear symptoms seem to be referable to simple overbite or overclosure of the jaw. Forty-two of the series presented ear symptoms. Thirty-two of them were edentulous or had natural teeth allowing a wide overbite. The majority of the forty-two ear cases presented headache in addition to deafness, tinnitus or dizziness. So it would seem that headache and the pain effects appear more common by a large majority than ear involvement.

The ear involvement was usually found to be mild and the result of compression of the eustachian tubes. Dizziness disappeared with the inflation of the eustachian tubes, and this was considered an important test in the diagnosis. Deductions as to the behavior of the tissues bordering the tube during overclosure of the jaw were made by experimental overclosure of the jaw of a soft tissue specimen. When this is done manually (to imitate similar overclosure in life), the tensor veli palatini muscle bordering the membranous anterior edge of the tube and the adjacent sphenomeniscus muscle are seen to wrinkle and crowd the eustachian tube, closing it firmly. During the act of swallowing, the tensor palatini muscle should be tensed and effect a temporary opening of the tube. This function cannot occur during overclosure, and the result is derangement of intratympanic pressure and dizziness. Continued production of the tube effects brings about a catarrhal or adhesive deafness exactly as produced by inflammation or pressure from the nasopharynx. The catarrhal deafness improves more or less after reposition of the jaw. The rate of improvement may be increased by inflation at intervals of the eustachian

7. Quoted by Kuntz, Albert: The Autonomic Nervous System, Philadelphia, Lea & Febiger, 1934, p. 287.
8. Dufourmentel, L.: Chirurgie de l'articulaton temporomaxillaire, Paris, Masson & Cie, 1928.
9. Axhausen, G. D.: Das Kiefergelenkknacken und seine Behandlung, Deutsche. Ztschr. f. Chir. **232**: 238, 1931.
10. Steinhardt, G.: Zur Pathologie und Therapie des Kiefergelenkknackens, Deutsche. Ztschr. f. Chir. **241**: 531, 1933.

tubes. Follow up has been possible in only the earlier of this large group, but a tabulation of sixteen cases of dizziness showed twelve of the patients improved in hearing and relieved of dizziness.

SUMMARY

Review of a large group of cases in which headache and ear symptoms were shown to be partially or altogether due to disturbed function of the mandibular joint shows this to be a common factor. The description of pain and ear involvement are similar in every respect to some commonly known eye, sinus and ear disorders.

Eighty-five cases fall into the pain group, and these include the ones with burning and sensory disturbance about the tongue and pharynx. Four of these showed salivary disturbance, which may be directly traced to irritation of the chorda tympani and auriculotemporal nerves; these effects also were relieved.

Thirty-five of the forty-two cases presented varying grades of catarrhal deafness, due either to compression from overclosure or to chronic nasal infection. Four of the ear cases presented shortened bone conduction and were not improved by reposition of the jaw; these may be regarded either as eighth nerve deafness or as examples of microfractures of regions near the otic capsule interfering with transmission of sound waves to the inner ear, as observed by Guild.[11] The dizziness is not typical of toxic labyrinthitis.

Twenty-six of the series, or about 20 per cent of the cases, showed mild herpes of the buccal mucosa, angle of the mouth and external ear canal, all preceded by pain and improving with the disappearance of the other symptoms.

The results of reposition of the jaws were generally good except in a few cases of malocclusion of natural teeth, presenting great difficulty. However, it was noted that the cases showing the best results were corrected in several stages, slowly increasing the vertical dimension of the jaw. This increase in distance is built into the molar district of the jaw and is not merely a problem of "opening the bite." Some failures to obtain a proper result have been traced to lack of understanding of this point and the anatomic problem involved by the dentist.

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ABSTRACT OF DISCUSSION

DR. ROLAND M. KLEMME, St. Louis: My interest in this subject was first aroused by a patient who presented herself with the following history: She had pain in her face following the extraction of a molar on the right side. She had visited three large clinics. The first clinic advised the posterior section of the fifth nerve; the second clinic advised a section of the ninth nerve; the third clinic advised a superior cervical sympathectomy. Her remark, as she stated her story, was "Just what shall I do?" Fortunately, none of these procedures were carried out. She was referred to Dr. Costen and was promptly relieved when proper treatment was instituted. The neuralgia as described by Dr. Costen is a definite clinical entity. It is frequently associated with trigeminal neuralgia, because many of these patients had all their teeth extracted on the side of their pain, and that is the cause of the associated neuralgia. Even after the relief of the trigeminal neuralgia by section of the sensory root these patients continue to have the pain, owing to lack of proper support. This is occasionally seen associated with glossopharyngeal neuralgia for the same reason. It is important to give a differential diagnosis between a trigeminal, glossopharyngeal neuralgia and a superior cervical sympathetic pain. A typical major trigeminal neuralgia is a definite clinical entity. It is characterized by paroxysmal attacks of lightning-like pain in the distribution of the fifth nerve, more commonly in its maxillary and mandibular divisions, and very commonly associated with a point on the face that, when irritated or stroked, will precipitate an attack. This is commonly spoken of as a trigger zone, usually the upper and lower lip at the angle of the mouth. Trigeminal neuralgia is most commonly seen after the fifth decade, although it is occasionally seen in younger people. It is unilateral as a rule; about 0.5 per cent are bilateral. The point to remember is that it is in the distribution of the fifth cranial nerve. Glossopharyngeal neuralgia, also a definite clinical entity that has been recognized for years, is a typical paroxysmal attack of pain in the distribution of the ninth cranial nerve. In addition, one must take into consideration the differential diagnosis between this condition and supernumerary teeth, carcinoma of the lip, carcinoma of the alveolar process of the jaw and carcinoma of the anterior two thirds of the tongue. Glossodynias, which have been rather baffling in the past, have responded very satisfactorily to this type of treatment. The one patient that Dr. Costen mentioned obtained immediate and permanent relief. This type of neuralgia must be considered every time one deals with an individual who has not had proper support in the jaw after the molars have been removed, and only after the dental profession has been educated not to extract teeth in neuralgia will the incidence of this disease be cut down.

DR. WENDELL G. SCOTT, St. Louis: With the patient reclining 23 degrees off the horizontal, the joint is roentgenographed on the under side. The x-ray tube is centered one-half inch anterior to the external auditory canal and 1½ inches above it. A small cone is used to give the utmost detail and contrast. Both joints are always taken with mandible open and closed. In Dr. Costen's excellent study of the changes in this joint, three changes can be identified on the roentgenograms: (1) the erosion of the anterior and superior aspect of the condyle involved; (2) a narrowing of the joint space with accompanying haziness and indistinctness of the bony outlines, which is indicative of arthritic changes; (3) the condyle on the involved side may move considerably farther forward on the eminence than does the normal side. In studying films of the temporomandibular joints, the appearances of both joints must be carefully observed in the same manner that mastoid films are analyzed.

DR. SAM E. ROBERTS, Kansas City, Mo.: I have some slides to illustrate how this dental procedure is carried out. I have been following Dr. Costen's teachings nearly two years, and I am sure I have had at least fifty cases, both the pain syndrome and the ear syndrome. One of my greatest difficulties has been getting the cooperation of the dentists. I have tried to be ethical and return the patient to his own dentist, and there I made a mistake. In one day there were three patients in my office who had had work done on their bite, and all of them had been improperly corrected. In fact, they were no better, and their bite was not opened. I have become unethical now. I take them away from their dentist and send them to some one who I am sure knows something about this procedure. As a consequence, I am getting satisfactory results. I don't want to appear too enthusiastic, but I do feel that the work that Dr. Costen has done has been one of the greatest advances in our specialty in many years. He has claimed too little rather than too much.

DR. JAMES B. COSTEN, St. Louis: I might say one thing regarding the relationship with the dentist. When I examine the patient I tell him what I think the trouble is, and I establish it by having him wear those cork disks for fifteen minutes or two or three days. I don't allow him to feel that his problem is solved and that I am through. I have him back in two weeks, and again in a month, and try to analyze any changes in his pain, especially if he is in the hands of a dentist who is disregarding, perhaps, the anatomic feature. The traditional training of dentists is to open the bite. What I try to impress on him is that, whether he opens the bite or not, the main thing to do is to increase the vertical dimension and allow the joint to pull down. After that is done, in a week or so, the incisors come together and the joint has given way to allow for the correction. These are the important points in getting results from a strange dentist if he is not thoroughly informed.

11. Guild, S. R.: The Probable Rôle of the Muscles of Mastication in the Causation of Microfractures of the Human Temporal Bone, Anat. Rec. 61: 20 (March) 1935.

CASE FINDING METHODS FOR THE DIAGNOSIS OF TUBERCULOSIS

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The declining death rate from tuberculosis is one of the most impressive events in modern medical history. Yet the retreating force still holds a devastating outpost, so that it remains the most fatal disease of early adult life and causes physical disability, economic impairment and social disruption beyond accurate estimation. The pulmonary form and its direct complications are responsible for all except a small percentage of this. It seems paradoxical, therefore, to state the fact that pulmonary tuberculosis is one of the most readily diagnosable diseases and, in its early stage, one of the most curable.

In general, the percentage of tuberculosis cases diagnosed in their early stages has increased discouragingly little in comparison with the lowering death rate. The recent survey [1] by the Council on Medical Education and Hospitals of the American Medical Association reveals that only 13.1 per cent of 66,861 tuberculous patients were in the incipient or minimal stage of the disease when admitted for treatment to the hospitals and sanatoriums of this country. Surveys of various groups of the population of New York City in which I have participated more or less directly in the past five years demonstrate that there are a number of reasons for this situation, one of the most important being that at least 60 to 70 per cent of tuberculous people do not develop an awareness of ill health until the disease has entered the moderately advanced or far advanced stage. Even in a group of intelligent graduate nurses who are employed at Bellevue Hospital and may have medical examinations on request, we have found in a five years study that about two thirds of those who develop clinical tuberculosis have moderately advanced or worse lesions when the diagnosis is first made. The reason is that, in the early stages, subjective symptoms are lacking or misinterpreted as physiologic fatigue, nervousness, or something equally innocent. It is difficult, by education of the lay public, to change this human tendency to ignore apparently small troubles. It is desirable, therefore, to seek for case finding methods that are effective for early diagnosis, practicable and not liable to arouse undue apprehensiveness in the population. That these conditions can be satisfied has been demonstrated by the five years study which we have made among student nurses at the Bellevue Hospital Training School for Nurses and by the work of many others. The methods are predicated on a recognition of certain prominent characteristics of behavior of tuberculosis in the community and in the individual.

TUBERCULOSIS AS A COMMUNITY DISEASE

In communities of people, tuberculosis tends to pattern its behavior along well recognized lines. Young adults and adolescents are especially liable to attack. Young women are more vulnerable than young men, but the reverse holds true after the age of 25 or 30, and to a more striking degree. Color is a prominent element in the pattern, especially in young people. Thus, in New York City the death rate is commonly five to ten times as high among young Negroes as among young white persons.[2] Occupation is important, since it usually is the determinant of living standards and often the expression of intelligence, very potent factors in the tuberculosis rate.[3] Work in dusty atmospheres is a menace, especially if dust is that of siliceous rock. A thread which runs through the whole pattern is the opportunity for and intimacy of contact with the "open," sputum-positive case, usually in the household; this may have been recent or remote. Among 73,701 adult "contacts" examined in New York City, Chicago and London, Drolet [2] estimates that 8.2 per cent were found tuberculous.

THE EARLY LESION OF PULMONARY TUBERCULOSIS

Diverse as its variations may be, there is a certain constancy of behavior of tuberculosis in the person. The first lesion of clinical importance is most likely to develop in a young person, usually between 15 and 25 years of age. It appears usually in the upper half of one lung, as a patch of lobular pneumonic infiltration. At best, this may undergo almost complete absorption and scarring in a few months, entirely unknown to the patient; at worst, it may caseate, liquefy at its center and discharge its bacillus-laden contents into the bronchial tubes, leading to contamination and infection of healthy parts of the lungs and the march of new lesions into advanced phthisis—all within a few weeks or a few months. Caseation is more constant than absorption, especially in the young, more especially in young females, and most especially in young colored females. Artificial as it may be, it is useful to set a dividing line between the early infiltrate and advanced cavernous phthisis, remembering that the former usually is the precursor of the latter. In distinction from the all too familiar picture of the latter, the early lesion does not give rise to cough or blood spitting, high fever or night sweats, but as a rule only to a mild toxemia which often expresses itself as easy fatigue, with loss of weight. Even these symptoms may not be recognized subjectively. There is, as yet, no softening or ulceration into the bronchus and therefore no sputum and no tubercle bacilli in discharges from the throat. Physical examination is entirely negative in about 50 per cent of the cases, and in most of the others the sole finding is a patch of fine râles in an area so localized that it is almost covered by the bell of the stethoscope. The roentgenogram shows, with rare exceptions, a patch of soft mottling or clouding, which may be only a centimeter or so in diameter, its size often belying its potentially dire significance.

Even after excavation of and bronchogenic extension from the original infiltration begins and proceeds—sometimes causing hemoptysis—the grippal, pneumonic or bronchitic character of the symptoms often deceives the patient, and sometimes the unwary physician also, particularly if the physical signs are scanty or lacking, if the need of x-ray examination is not recognized, or if reliance is placed on a single sputum examination.

If such alertness must be expected of the physician in the presence of the occasional patient with early tuberculosis who comes to the office or clinic with symptoms, how are we to reach the much greater number who will not come before more advanced disease has developed? It is obvious that physical examination of large groups of people is not sufficiently reliable for the purpose. The most effective method is x-ray examination of the

Read before the Section on Miscellaneous Topics, Session on Tuberculosis, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Survey of Tuberculosis Hospitals and Sanatoriums in the United States, J. A. M. A. **105**: 1865 (Sept. 7) 1935.

2. Compilations by G. J. Drolet, statistician, New York Tuberculosis and Health Association, 1936.

3. Whitney, Jessamine, S.: Death Rates by Occupation, National Tuberculosis Association, 1934.

chest of groups of the population selected for their probable susceptibility to the disease. Such groups include young laborers in industry, factory girls, young mothers attending antepartum clinics, Negroes living on a low economic level, and high school and college students. In fact, a sizable community can determine, from mortality records, in what sections of the population tuberculosis has worked most of its havoc, and then survey those sections with the full expectation of finding nests of unrecognized disease.

The use of tuberculin testing before x-ray examination is a matter to be decided for each survey. In urban communities, where two thirds or more of the selected population groups are found to be tuberculin positive, it is usually simpler and more economical to proceed without this preliminary. In adolescents, especially, tuberculin testing is a good means of eliminating the majority who will not react and, therefore, not require x-ray examination.

Narrower searching concerns families and household groups principally. The death of an infant from tuberculous meningitis, for instance, means recent contact with an "open" case, and x-ray examination of the chest of each member of the household is likely to find this. Examination of "contacts" should always be carried out.

In ordinary practice, x-ray examination is made with the celluloid film. In large surveys the rapid paper film method has been found highly effective and economical. In certain groups, fluoroscopy of the chest as a part of the periodic physical examination approximates the roentgenographic method closely in efficiency.

The yield of case finding methods depends, of course, on the prevalence of tuberculosis in the community. Where the annual death rate from the disease is between 60 and 100 per hundred thousand of population, the yield of new cases usually is from 1.5 to 2 per cent of the number examined. In some groups, particularly in older people, it runs to 4 or 5 per cent, but in these the lesions are more often of a chronic fibroid and obsolete type. Of the lesions found, 70 per cent or more can be expected to be in the minimal stage according to the classification of the National Tuberculosis Association. In groups of young people, repetition of the examination annually will reveal a number of newly developed lesions in previously clear lungs, varying according to the rate of infection determined by the tuberculin test and the opportunity for reinfection. In a group of student nurses we have found an incidence of new lesions of about one per hundred annually. Yearly x-ray examination detects from 70 to 80 per cent of the cases in the minimal stage, and we have found that semiannual examination brings the percentage almost to 100. Not all of these lesions are serious nor do they all require treatment. Case finding, therefore, may accomplish little unless the yield is studied and sorted by physicians of experience, after proper clinical study. Remembering the potentialities of the early infiltration occurring in young people and causing few or no symptoms, the physician must have conviction as well as skill, since the prompt and proper treatment of such lesions is the most effective measure in combating tuberculosis. It is doubly effective, since it surpasses any other means of restoring a patient to lasting health and, simultaneously, is the best preventive of the development of advanced cavernous phthisis, which is the infection source of almost all subsequent tuberculosis in other people. It is apparent, therefore, that neither the case finding survey nor the skill and conviction of the physician will be of avail unless facilities are provided for prompt and proper treatment. In most communities the sanatorium waiting list is a positive curse.

The cost of case finding is considerable, but trifling in comparison with the exactions of advanced tuberculosis in most communities.

SUMMARY

1. Pulmonary tuberculosis remains the first cause of death in young adults.

2. From 60 to 70 per cent of tuberculous people, even intelligent ones, are unaware of symptoms of serious disease until the pulmonary lesions are moderately or far advanced.

3. Most cases will not be diagnosed early except by case finding methods based on a familiarity with the characteristics of tuberculosis as a community disease as well as an individual lesion. Some of these characteristics are mentioned.

4. The simplest and most effective method of case finding consists of x-ray surveys of the chests of selected susceptible groups, in some instances with preliminary tuberculin testing.

5. In the yield of cases from such surveys, the proportion found in the earliest stage is 70 per cent or more.

6. If the cases found are skilfully studied and promptly and properly treated, when necessary, the accomplishment of actual cure of the disease and prevention of spread of the infection to others exceeds that of any other known methods.

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ABSTRACT OF DISCUSSION

DR. GEORGE H. HOXIE, Kansas City, Mo.: The difficulties with the procedure are twofold. Most physicians are loath to take on this new work, and secondly there is lacking in the community physicians willing to take the leadership in the unpopular work of carrying on surveys and preventing the disease rather than curing it. Yet it rests with the medical profession to decide what is to be done. In those communities in which the medical profession has studied the matter there seems to be a gradual recognition that something should be done and that it is up to them to do it. But if we do not take that attitude we should not be displeased with the general public if it takes up this work of preventive medicine. One of the chief difficulties in discovering early cases has been the difficulty in recognizing early lesions. And it is only by the recognition of the early processes that we can hope to secure a real advance in this campaign. It seems to me that in the Middle West we would have to make an approach different from that suggested by Dr. Amberson. It will be easier for us to enter the public schools and take the pupils in groups on which to carry on our surveys. And I believe that it would be wiser if we went below the adolescent age and examined the students in the elementary grades, not so much with the view of finding the disease full blown as by using the tuberculin test to find familial infections, foci of infection, the carriers, and the fibroid types of disease hidden through former wrong diagnosis. I should like to see the feeling general among the medical profession that tuberculin testing should be done in the preschool age or in the first year of the elementary grades, in order to find foci of infection. Surveys in high schools should be done with the aim of recognizing the individuals about to become sick. The next question was concerned with what to do with children who show positive tuberculin tests. Most of them do not need sanatorium treatment, but they do need very close supervision. Another point is to have x-ray work that is above reproach. Much of what I have seen has been questionable, and I believe that it will be necessary to ask for better machines—machines that will make an exposure through a youngster's chest in a tenth to a twentieth of a second—and to have interpretations of films by men who understand the beginning lesion rather than cavitation and fatal or far advanced lesions.

DR. WILLIAM DEVITT, Allenwood, Pa.: We who live in institutions and work with tuberculosis all the time are impressed with the statement Dr. Amberson made that only 13 per cent of the cases that come under our observation are incipient. I know of nothing easier to cure than early tuberculosis and of nothing harder to cure than far advanced tuberculosis, the kind that all institutions get. I believe thoroughly that we shall never control tuberculosis until we have brought that to the attention of the family physician. He is the first to see the case, whether it is minimal, early or far advanced. Until we wake him up to that possibility, we shall never do much to stamp out tuberculosis. It has been shown that one out of forty-six school teachers has an active, positive tuberculosis. It has been shown that there are 18,000 school teachers in the United States who have positive tuberculosis. If that is true, it behooves us to do something about it. Dr. Myers of Michigan has done a great deal of work in that direction, until the state of Michigan, because of Dr. Myers' efforts, began to demand that every school teacher have a clear bill of health either by a tuberculin test or by competent x-ray examination. I do not know how to bring about this state of affairs. It certainly is not a federal or national concern. It must come from the local boards, and from them to the local states. It is a problem for each state. If school teachers are compelled to undergo an examination they will be helped because they can be cured. We always have between five and nine school teachers. Nobody today knows the solution of the problem of tuberculosis. Miss Whitney has said that it is going to be more difficult from now on to lower the death rate than it has been for all these years, because we have done the obvious and now we have to go out and find the hard, difficult things to do.

DR. SAM H. SNIDER, Kansas City, Mo.: In tuberculosis we look for the woman who infected the child. It may be a mother, it may be a teacher, it may be a grandmother. In a case of tuberculosis in a child whose father, the mother, the cook and the chauffeur showed no signs of tuberculosis on examination, the grandmother apparently was the source of infection, since she had a moderately advanced tuberculosis. Dr. Pinner and Dr. Amberson have stated clearly the epidemiology and the pathology of early tuberculosis. I like to use the term "childhood type tuberculosis," not "childhood tuberculosis," because childhood type tuberculosis is not peculiar to childhood but may be seen in adult life. It is seen in people past 40. The progression from the childhood type to the adult type of tuberculosis may be very rapid. What yesterday was a childhood type of tuberculosis, with only a caseated gland in the hilus, tomorrow may be a far advanced tuberculosis. Let us therefore not forget that any child with a childhood type of tuberculosis, particularly as he is approaching the adult stage of life, may within a month or two become a menace to the community. We should reexamine the children with the childhood type of tuberculosis. I like to examine them with the fluoroscope not less often than every two or three months to determine if there is any progression of the lesion, and if there is any suspicion I like to use the x-ray plate to determine further the progression. Tuberculin tests are made for the purpose of determining who shall have x-ray plates. The x-ray plate will determine the degree of advancement. If we can apply pneumothorax therapy to the adult case fairly early, as soon as cavitation appears, we shall be very much more likely to suppress the infection before that individual has spread his infection to a large number in the community.

DR. H. I. SPECTOR, St. Louis: In a study of statistics of the tuberculosis mortality in St. Louis, it was found that 50 per cent of the cases were reported after death of the patient or a month before death. A questionnaire was sent to the physicians in St. Louis asking them to state the reasons for late reporting. Some 25 per cent of the physicians frankly admitted that they were unable to recognize the disease in its early stages. Others stated that in many instances in which the diagnosis was in doubt they would suggest to the patient the necessity of a roentgenogram but the patient could not afford to pay for it. The advice to have sputum examined was not always followed. The patients likewise failed to return for observation. These are practical points that come up in the control of tuberculosis. Many physicians stated that the patients came to the physician in a late stage of the disease, when the damage has already been done. Those of us charged with the responsibility of controlling tuberculosis have these practical problems to face. In our own city, we felt that, as long as physicians admitted that they were unable to diagnose and recognize early tuberculosis, something had to be done about it. We have for this reason instituted courses on tuberculosis. We offer annual courses to physicians, stressing practical points, not immunology or pathology. Because of the fact that tuberculosis in the early stage does not always manifest itself by signs, we are teaching them other methods of diagnosis. I think we have been fairly successful in getting the cooperation of the physicians. We are going to conduct our fifth annual session this coming fall. How to get the patient to come to the doctor early in the disease is always a problem. Through the radio and the press we are advocating and urging periodic health examinations. It seems to me that unless we attack the problem from these two angles, we are going to fail in recognizing the early cases.

DR. J. BURNS AMBERSON JR., New York: In the past five years during which we have used such case finding methods among student nurses in the Bellevue Hospital Training School, we have regarded these small newly developed lobular pneumonic lesions seriously and have given the cases prompt and rigid treatment. In the group so treated there has not been a single death from tuberculosis and not a single case has gone on to advanced disease. Practically all these girls who have finished treatment are now back at work and thus far have had no further trouble from their tuberculosis.

PRIMARY MALIGNANT DISEASE OF THE TRACHEOBRONCHIAL TREE

REPORT OF 140 CASES

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One of the interesting developments of the past decade has been the marked increase in the incidence of primary malignant disease of the tracheobronchial tree. Prior to 1925, primary malignant growths in the air passages were considered rare; at present, however, they are encountered as frequently as pulmonary abscesses.

It is true that certain types of malignant growths arising primarily in other organs may metastasize to the lungs and ulcerate through the bronchial wall, producing signs and symptoms that are identical with those occasioned by primary bronchial growths;[1] in most instances, however, the differentiation of primary and secondary neoplasms in the lung is not difficult. Metastatic nodules in the lungs, even though they may be large and numerous, rarely produce signs or symptoms of pulmonary disease unless they involve the pleural surfaces and cause pain or effusion into the pleural space. When secondary growths are situated in the parenchyma of the lung, they may be unsuspected until a roentgenogram of the thorax reveals their presence. In contradistinction to metastatic nodules in the lung, a small growth arising in a bronchus may soon reduce the lumen of the tube and interfere with drainage to such an extent that suppurative processes may mask the underlying disease.

The chief factor in the more frequent antemortem recognition of primary malignant growths in the air passages has been the more general employment of

From the Division of Medicine, the Mayo Clinic.
Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

1. Maytum, C. K., and Vinson, P. P.: Pulmonary Metastasis from Hypernephroma, with Ulceration into a Bronchus Simulating Primary Bronchial Carcinoma: Report of a Case, Arch. Otolaryng. **23**: 101-104 (Jan.) 1936. Vinson, P. P., and Martin, W. J., Jr.: Pulmonary Metastasis from Hypernephroma Diagnosed by Bronchoscopy, ibid. **15**: 368-370 (March) 1932.

bronchoscopy in the diagnosis and treatment of chronic pulmonary diseases and the removal of tissue for microscopic examination.

Doubt as to the accuracy of pathologic reports in these cases has recently been expressed, especially by Kernan [2] and also by Kramer,[3] who felt that many of the growths found in the bronchi are benign and should be classified as adenomas or carcinoid tumors. They contended that, although the tumors may resemble carcinomas, they do not exhibit evidence of mitosis, are more frequently encountered among women, produce symptoms because of mechanical interference with bronchial drainage, never produce metastatic lesions, are readily removed by diathermy but are insensitive to irradiation, and may be diagnosed accurately from their gross appearance at bronchoscopic examination. While it is not my purpose in this report to attempt to settle this controversy, I can state that from the pathologic, clinical, roentgenographic and bronchoscopic observations it is felt that the lesions in the cases presented in this paper represent true malignant tumors. While some may have been benign, it was not possible to distinguish them in any way from malignant tumors.

From May 1925 to January 1931, at the Mayo Clinic, a diagnosis of primary malignant disease of the trachea or bronchi was made from microscopic study of tissue removed at bronchoscopic examination [4] in seventy-one cases. From January 1931 to June 1935 a similar diagnosis was made in sixty-nine additional cases. The purpose of this report is to analyze all these cases and the results obtained from the various types of treatment employed. One hundred and ten of the patients were men, thirty were women. Five patients were from 20 to 29 years of age, sixteen from 30 to 39 years, thirty-two from 40 to 49 years, fifty-one from 50 to 59 years, and thirty-four from 60 to 69 years; one patient was 72 and another 75 years of age.

Many factors have been mentioned as influencing the development of carcinoma in the lung, one of which is tuberculosis. In the present series tuberculous infection in the lung was present in only two cases. It does not seem likely that tuberculosis is an etiologic factor, as the increase in malignant lesions of the lung has come at a time when tuberculous infections have shown a decided decline.

Other respiratory infections had been present in sixty-eight cases, but there was little evidence to establish an etiologic relationship as most of these infections were mild and were not associated with the development of symptoms leading to a diagnosis of pulmonary carcinoma. However, there were a few cases in which malignant disease had developed in the respiratory tract of patients who had suffered from chronic bronchiectasis for many years. Seventy of the patients were smokers, which certainly was not a noteworthy finding. There was a family history of carcinoma in nineteen.

Practically all chronic pulmonary diseases have similar symptoms and it is futile to attempt to distinguish one from the other on the clinical history alone. One of the most frequent symptoms of pulmonary disease is cough, and yet it is an interesting feature of pulmonary carcinoma that an advanced lesion may exist with evidence of metastasis and stenosis of a bronchus without cough being present. This was true in ten of the cases. Three patients had not noted any pulmonary symptoms. Dyspnea was a prominent symptom and was present in ninety-nine cases. Pain in the thorax was noted by ninety-three patients, and in many instances it was a very disturbing symptom. Sputum was present in 100 cases, and hemorrhage or blood-stained sputum had been noted in eighty-four. One hundred and twenty-one of the patients had lost weight, and this was usually associated with more than a corresponding loss in strength.

Stridor, which was present in thirty-five cases, is usually interpreted as being produced by an obstructing lesion proximal to the bifurcation of the trachea; in the majority of these cases, however, the lesion was situated well beyond the carina. In one case definite stridor was produced by a lesion that obstructed a bronchus to the lower lobe of the lung. Any lesion producing bronchial occlusion interferes to a greater or less degree with drainage from that area of the lung distal to the obstruction and infection invariably ensues. Evidence of sepsis occurred in many of the cases in the series. Fever was present in sixty-two cases; sixteen patients had had chills, and fifty-five had leukocytes numbering more than 10,000 per cubic millimeter. Ten patients had clubbing of the fingers. Eighteen had had an effusion into the pleural space.

The most significant physical sign was evidence of bronchial obstruction as revealed by distant breath sounds, which was noted in 113 cases. This finding is noted rarely in other pulmonary diseases without involvement of the pleura and, when it is observed without corresponding impairment of the percussion note over the area involved, carcinoma should be suspected at once. In some cases breath sounds were markedly reduced or absent when on bronchoscopic examination the bronchial lumen did not appear to be greatly narrowed. This is in striking contrast to the absence of physical signs in cases of inflammatory lesions of the lung, especially in cases of pulmonary disease in which the lumen of the bronchus is greatly reduced in size.

Distant metastasis may present the first evidence of primary bronchial carcinoma. This has been true particularly in cases in which secondary lesions have occurred in the brain. In a few instances glandular metastatic lesions were not demonstrated, although metastatic nodules in the opposite lung were revealed on roentgenographic examination.

Twenty-eight of the patients in the series had definite metastatic lesions; in one case metastasis was questionable. Seven patients were hoarse as a result of involvement of the nerve supply to a vocal cord; in five of these cases metastatic masses were not demonstrable.

Roentgenographic examination revealed the presence of a lesion in 136 cases. In one case in which the examination was considered negative the tumor was situated in the trachea; in three cases in which the lesion was situated in the lumen of a bronchus, however, examination failed to reveal the presence of disease. In some cases the roentgenologic appearance of bronchial carcinoma is quite characteristic, but in the majority of cases it is impossible to distinguish malignant from benign lesions. In four cases the lesions were situated in the trachea; in the remainder they were bronchial in origin. In eighty-seven cases lesions were on the right side, and these were distributed as follows: thirty-one in the main bronchus, forty-three in the bronchus to the

2. Kernan, J. D.: Treatment of a Series of Cases of So-Called Carcinoid Tumors of the Bronchi by Diathermy: A Report of Ten Cases, Ann. Otol., Rhin. & Laryng. **44**: 1167-1191 (Dec.) 1935.

3. Kramer, Rudolph: Adenoma of the Bronchus, Ann. Otol., Rhin. & Laryng. **39**: 689-695 (Sept.) 1930. Kramer, Rudolph, and Som, M. L.: Further Study of Adenoma of the Bronchus, in Transactions of the Eighteenth Annual Meeting of the American Bronchoscopic Society, St. Louis, Annual Publishing Company, 1935, pp. 64-84.

4. Vinson, P. P.: Primary Carcinoma of the Bronchus: Report of Seventy-One Cases in Which the Diagnosis Was Made by Bronchoscopic Examination, Minnesota Med. **15**: 15-17 (Jan.) 1932.

lower lobe, four in that to the middle lobe, and nine in that to the upper lobe. Forty-eight of the lesions were on the left side; twenty-seven of these were in the main bronchus, fifteen in the bronchus to the lower lobe, and six in the bronchus to the upper lobe.

In one case both main bronchi were obstructed by the tumor and it was impossible to determine the origin of the growth. In this case death occurred immediately after withdrawal of the bronchoscope and was evidently the result of bilateral bronchial occlusion. Symptoms of respiratory limitation in this case were not pronounced until immediately before examination was begun, and they were erroneously attributed to a nervous reaction associated with instrumentation. This was the only fatality that was related in any way to examination.

According to the method of grading advocated by Broders, carcinoma of the bronchus represents a high degree of malignancy. Seventy-six of the lesions were squamous cell epitheliomas; forty-two of these were graded 4, thirty were graded 3, three were graded 2, and one could not be graded satisfactorily because the tissue was insufficient in amount. In fifty-nine cases the lesion was an adenocarcinoma; twenty of these were graded 4, twenty-seven were graded 3, six were graded 2, and six were graded 1. Undifferentiated carcinoma of grade 4 was present in two cases and of grade 3 in one case. One lesion was not graded and one was thought to be lymphosarcoma.

Although there was no difference in the pathologic appearance of tissue removed from the seventy-one patients observed in the period from May 1925 to January 1931 and from the sixty-nine who were examined from January 1931 to June 1935, there was nevertheless a striking difference in the clinical course in these two groups. In the first group metastasis had occurred in ten cases, whereas in the second group it occurred in eighteen. In the first group pleural effusion was present in six cases and in the second group in twelve. In the first group eight patients survived for as long as four years following high voltage roentgen therapy, and six of these were living at the time of writing, from four to seven and a half years after treatment.[5] In the second group four patients are living and are in satisfactory condition ten, eleven (two cases) and thirty months following irradiation or local destruction of the tumor by surgical diathermy; a fifth patient in this group is living but is in failing health one year after irradiation. All patients in each group who did not receive treatment are dead; in the first group thirty patients who were not treated lived an average of six months after examination at the clinic; in the second group twenty-six who were not treated lived little more than an average of four months. Excluding those patients in the first group who at the moment of writing were still living, the duration of life of the thirty-five patients who received treatment was more than twelve months; the duration of life of the thirty-eight patients in the second group who received treatment, on the other hand, was five and a half months. It would appear from these data that neoplastic disease of the tracheobronchial tree is not only becoming more frequent but is exhibiting increasingly malignant characteristics.

Although it seems unwise to draw too sweeping conclusions as to prognosis from study of small groups of cases representing different types of lesions, nevertheless from my experience better results have been obtained from treating patients with adenocarcinoma than those with lesions of the squamous cell variety. Nine of the eleven patients who are living had lesions of the adenocarcinomatous type. Four of them are women, the remaining five, men. Of the two patients with squamous cell tumors, one is the man who is failing rather rapidly a year after treatment and the other is a woman who was well four years after treatment.

Numerous investigators have reported gratifying results following surgical removal of malignant growths from the lung, but, as equally good or better results can also be obtained by a combination of radiotherapy and surgical diathermy in the treatment of an adenocarcinomatous type of lesion, it would seem proper at present to restrict radical operation to the squamous cell type of tumor.

5. Vinson, P. P., and Leddy, E. T.: The Roentgen Treatment of Primary Malignant Disease of the Tracheobronchial Tree, Ann. Otol., Rhin. & Laryng. **41**: 1259-1267 (Dec.) 1932.

ABSTRACT OF DISCUSSION

DR. JOHN DEVEREUX KERNAN, New York: Up to 1933 there had been in the Presbyterian Hospital in New York sixty-six cases of carcinoma of the lung; in the past three years there have been sixty-five cases. This reports a material nearly as large as that of Dr. Vinson. At the Lenox Hill Hospital in New York between 1923 and 1933 there have been twenty-eight additional cases. All the large hospitals report the same increase, in spite of the fact that in many large hospitals the bronchoscope is not yet in frequent use. The etiology is just as obscure as in carcinomas anywhere else in the body. There are undoubtedly cases of a primary tumor of the bronchi which closely resemble carcinoma and are reported as such by the pathologist. Nevertheless, their history and course are nonmalignant. They begin early in life and persist for many years without metastases. Their symptoms are purely the local ones of the obstruction of a main bronchus. Local treatment by diathermy or even by removal by forceps will cure them. Surely these are not what are ordinarily thought of as cancers. It is important to recognize them, as they will be reported by the pathologists as carcinomas and the most radical treatment, such as lobectomy and pneumonectomy, may be proposed. It is surprising that, in spite of his broad clinical experience, Dr. Vinson has not yet encountered tumors which, for lack of a better name, are called adenoma. Dr. Vinson makes the important point that all chronic pulmonary diseases have similar symptoms. Neither the history, the physical examination nor the x-ray appearances are characteristic. Only by bronchoscopic examination and the removal of a specimen for biopsy can the diagnosis be made with certainty. The next most valuable means for making the diagnosis is the x-ray examination, which in Dr. Vinson's series revealed the lesion in 136 out of 140 cases. Dr. Vinson approves only of x-ray treatment and has made little mention of the various surgical attacks that are now proposed. I believe that successful lobectomies and pneumonectomies have been reported by a number of authors. It has not been my good fortune to see one of these successful cases. I should like to ask Dr. Vinson whether he has had any experience with surgical procedure and whether he has seen any that even promised hope. The experience of Bellevue Hospital has been a complete failure as far as surgical measures are concerned. The results of x-ray therapy have not been encouraging. In the twelve years from 1922 to 1934, seventy-two males and thirty-two females with carcinoma of the lung were treated by x-ray therapy at the Presbyterian Hospital. Only twenty-one of these cases received a satisfactory dose. The others had been treated in earlier years with smaller dosage and in some cases lower voltages. Four of the twenty-one patients survived between fifteen and twenty-eight months.

DR. EDWARD H. SKINNER, Kansas City, Mo.: The following procedures may be used in the treatment of a carcinoma of the lung: (1) a lobectomy, (2) a pneumonectomy, (3) the placing of a radium container with radium element opposing the lesion, (4) the use of radon implants, (5) the use of surgical procedure of lobectomy plus radon, and (6) the matter of high voltage roentgen therapy. This discussion is from the angle of what might be hoped for with high voltage roentgen therapy,

when the surgeon agrees that lobectomy or pneumonectomy is not possible. Gamma irradiation, when one is treating a malignant growth in any circular organ, provides the possibility of producing a stenosis of that organ in the process of healing. Therefore I am inclined to agree with Dr. Kernan when he says that some of the cases treated with high voltage therapy have not been benefited but their condition made worse. Undoubtedly the same result may take place in the case that has not been treated with x-ray therapy. It is my observation in the career of these cases that the disease itself may produce the blocking, with the infection developing in the particular area behind the stenosis. One must be careful in attempting to apply a lethal dose of x-ray therapy to any large area, and therefore if any one is proposing to use high voltage therapy on these lesions, may I suggest that he carefully localize the lesion. With the fluoroscope a lead circle is placed on the posterior wall of the patient and another lead circle on the anterior chest wall. The lesion is lined up directly between these two circles with a straight beam of the x-rays. The x-ray therapy should be introduced through a very small portal, not more than a 5 cm. port, possibly smaller. This must be focused most exactly and the x-ray film with the record of the fluoroscopic examination must be at hand so that one can actually center on the particular portion of that lung. If one does use a large port of high voltage therapy on lung tissue, one should be cognizant of what has happened in the treatment of mammary carcinoma. I have produced a pleuritis, a pneumonitis, with consequent fibrosis. I have produced such a thickening of the pleura as to obliterate the space of a lobe. Therefore, all high voltage roentgen therapy must be done through very small portals. This will give another advantage, that of introducing a far larger amount of gamma radiation to that particular area by cross-fire. Large skin portals sacrifice avenues of cross-fire. It is folly to attempt to apply x-ray therapy anteriorly and posteriorly to a chest presenting a malignant growth. It is high time that the beam be focused directly and intimately on the lesion which has been properly localized by means at hand.

DR. MILLARD F. ARBUCKLE, St. Louis: Malignant disease of the lung probably is increasing. Abscess usually is present and often obscures the diagnosis. Improved methods of study have increased the number of positive diagnoses. Except by direct extension from contiguous growth, as in cancer of the esophagus, invasion of the bronchial wall from a metastatic lesion is unusual; but I have seen the biopsy specimen from a case in which a melanoma of the cheek metastasized to the bronchial mucosa. In about 33 per cent of our autopsies there has been involvement of the adrenal glands. Metastatic brain lesion occasionally is the first sign of primary endobronchial carcinoma. Prognosis and treatment based on microscopic classification alone is not satisfactory. Tuttle and Womack showed that a well differentiated cancer arising from a small bronchiole may resemble a very poorly differentiated cancer arising from a major bronchus. It follows that most well differentiated cancers arise in the major bronchi, while those of the poorly differentiated variety arise in the minor bronchi. Analysis of sixty cases selected from a group of 150 showed that carcinoma originating in the major tubes permitted a much longer duration of life than those originating in the smaller tubes and in the periphery of the lung. Some patients with treatment and some without in cases of tumors originating in the major bronchus lived an average of 26.3 months from onset of the symptoms to death. Two patients lived sixty months and one fifty-four months, whereas those with tumor in the parenchyma lived on an average only 7.3 months from onset of the symptoms to death. Early in its course, bronchiogenic carcinoma invades the bronchial wall, though the bronchial wall probably forms a temporary barrier between the cancer and the regional lymph nodes. This barrier has already been passed in most cases when the patient is first examined. The curability of bronchiogenic carcinoma, like that of cancer elsewhere in the body, depends on its extent and on the possibility of its being completely removed or destroyed. Because of its distribution, the hope of cure of endobronchial carcinoma by the local use of cautery or radon seeds is not well founded; but palliation may be possible. In benign tumors I have no doubt that cure may occasionally be obtained by the use of diathermy or cautery or by irradiation. This would apply especially to polypoid, adenomatous lesions projecting into the bronchial lumen with very little infiltration of its wall.

DR. EDWIN N. BROYLES, Baltimore: For the last twenty-five years, bronchoscopy has gone ahead by leaps and bounds, owing to the work of Killian in Germany and of Dr. Jackson and his co-workers in Philadelphia. For the last three years thoracic surgery has started upward, and I believe that the solution for the treatment of large tumors and carcinomas is going to lie in the field of thoracic surgery. I believe that surgical treatment is the correct treatment for the removal of these large tumors. When looking down through the bronchoscope, one has no idea of the size of the growth; one merely sees the top when it completely occludes the bronchus. These tumors occur in young adults, who, I believe, can stand the operation fairly well when there is no infection.

DR. PORTER P. VINSON, Rochester, Minn.: The physicians who have kindly discussed my paper have brought up some interesting questions with regard to carcinoma of the bronchus. One of the difficulties about determining whether radical operation should be employed in these cases is the fact that the pathologists have not settled the type of tumor in the bronchus. At present I should hesitate to advise surgery in the cases classified as adenocarcinomas, because, as Dr. Kernohan has pointed out, these tumors, whether they are adenomas or adenocarcinomas, respond to diathermy and to irradiation. In the majority of instances the tumors are located near the bifurcation of the trachea, and many of them have metastases or pleural effusion at the time of examination. This, of course, reduces the accessible and favorable cases to a very small number. I should hesitate to attempt removal of one of these tumors with forceps. Many of them are quite vascular and, in one of my recent cases, a rather severe hemorrhage followed coagulation with the diathermy needle.

THE PRESENT STATUS OF OXYTOCICS IN OBSTETRICS

M. EDWARD DAVIS, M.D.
FRED L. ADAIR, M.D.
AND
SARAH PEARL, M.D.
CHICAGO

The rapid strides that obstetrics has made in the present century has detracted little from the universal popularity that the oxytocic drugs have enjoyed since their introduction into medicine. New drugs and many derivatives of the older drugs have been introduced from time to time, and some have added confusion to the therapeutic armamentarium of the obstetrician. Clinical impressions on the value of many of these oxytocics have had to give way to sounder methods of investigation and evaluation. It is thus not surprising to find that many of the therapeutic claims for drugs used in ancient eras have not withstood the test of time and progress.

The first authentic oxytocic drug introduced into medicine was ergot. The medicinal properties of this fungus, which attacks rye, the consumption of which resulted in widespread epidemics of "ergotism" leaving mutilation and death in its wake, was known to European midwives. However, it remained for John Stearns[1] of Saratoga, N. Y., to introduce its use in obstetrics in 1807. Many other medicinal herbs and drugs of various kinds were used by earlier peoples all over the world for their oxytocic properties in labor and the puerperium but more often as abortifacients. Although most of these therapeutic agents have been

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1. Stearns, John: New York M. Repository **11**, 1807.

lost in the limbo of time, ergot still serves mankind. Recent investigations have resulted in a new active principle derived from this drug, which is probably responsible for most of its desirable oxytocic activity, so that much of this paper will be concerned with this new agent.

The crude drug contains many constituents, some of which are peculiar to ergot, others not; some of which exhibit oxytocic activity, others being relatively inert.

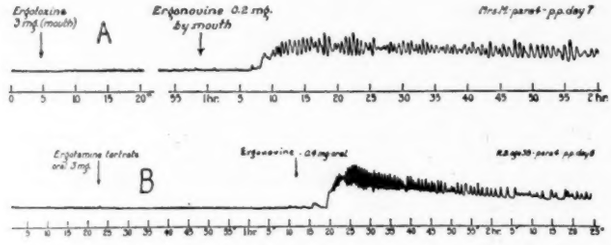

Fig. 1.—*A*, kymographic tracing of uterine motility following the oral administration of 3 mg. of ergotoxine. No uterine contractions occurred for nearly an hour, although the uterus promptly responded following the administration of 0.2 mg. of ergonovine orally. *B*, a second record in which no uterine response followed the oral administration of 3 mg. of ergotamine tartrate. The above curves demonstrate that the desirable effect of ergot does not reside in its previously described alkaloids.

Medicinal preparations of ergot were in common use in obstetrics before any of the now known constituents were isolated and identified. Thus the earliest decoction prepared by Stearns [2] consisted of one-half drachm (2 Gm.) of powdered ergot in one-half pint (236 cc.) of water boiled and given to the patient in three doses at twenty minute intervals. This preparation was crude and unstable, and of questionable potency and dosage. The efficacy and value of the drug soon led to its official recognition by the pharmacopeias of this and other countries. The alcoholic extract became the U. S. P. preparation, in which a 49 per cent alcoholic solution is used. The aqueous extract became the official B. P. preparation, in which water is used in the extraction of the crude drug, and alcohol is added as a preservative.

Various pharmacologic methods of biologic assay are used to assure the potency and uniformity of these official preparations. There are three methods of assay of ergot for potency in common use today. The cock's comb method has been given official recognition in the United States Pharmacopeia. This method makes use of the phenomenon of ergotism. A standard fluidextract of ergot when injected into the breast muscle of a cock, in a dose not exceeding 0.5 cc. per kilogram of body weight, i. e., about 1 cc. per fowl, will show marked bluing of the cock's comb. These fowl are all standardized. The Broom-Clark method of biologic assay has become official in the British Pharmacopeia. Here the pharmacologic antagonism of ergot and epinephrine is utilized. When isolated uterine strips from rabbits are treated with epinephrine, the motor action of this drug is abolished by a standard ergot preparation.

Tanret [3] in 1875 isolated ergotinine from crude ergot. Although this alkaloid proved to have no oxytocic properties, ergotoxine isolated by Barger and Carr in 1906 was found to contain some activity. Stoll [4] in 1918 isolated and described an inactive alkaloid from certain strains of ergot which he called ergotaminine and its active isomer ergotamine. In recent years two other alkaloids, sensibamine and ergoclavine, have been reported. Little work has been done on the latter drugs. Thus, of the four well known alkaloids present in ergot at least two exhibit oxytocic properties.

With the advent of the pure alkaloids, some of these were substituted therapeutically for the aqueous and alcoholic extracts. Ergotoxine and ergotamine, when studied by the present methods of investigation on the human uterus, are found to have a very unreliable action when given by mouth in several times their therapeutic dose (fig. 1). When any oxytocic activity is manifested, it is delayed and irregular in its exhibition. Parenteral administration evokes a variable response in large doses, coming on after a considerable length of time. Thus these newer experimental data definitely prove that the oxytocic activity residing in the crude extract is not due in a great measure to these known alkaloids.

Until Moir [5] began his investigations on the aqueous extract (B. P.) it was generally assumed that all the desirable activity of ergot in obstetrics was due to the known alkaloids in the preparation. Indeed, Barger,[6] in his monograph on ergot and ergotism, states that the quantity of the total alkaloids is a measure of its physiologic activity. Moir [5] studied the official B. P. aqueous solution and found that it was an active oxytocic preparation even though it was low in alkaloidal content. He further showed that the presence of ergotoxine, ergotamine and histamine were not in themselves sufficiently active to account for the entire oxytocic activity of ergot preparations. These experiments were confirmed by us and by Koff,[7] working independently. All these experiments crystallized the idea that crude ergot still contained an unknown substance, soluble in water and unlike the known alkaloids which was responsible for most of the desirable activity present in the drug.

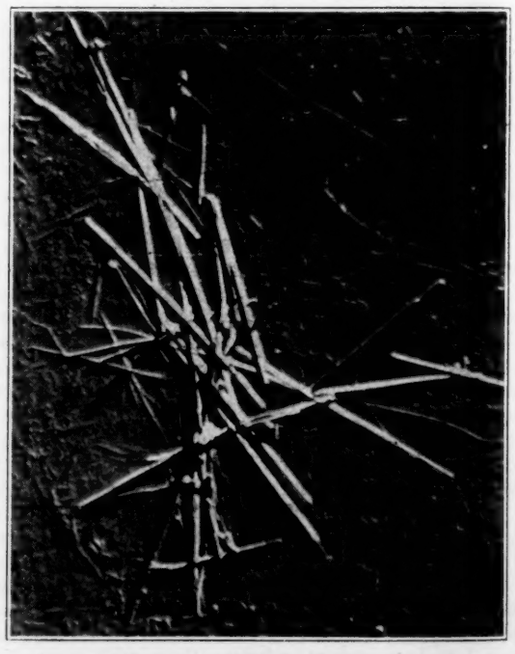

Fig. 2.—Appearance of crystals of ergonovine maleate.

2. Stearns, J.: M. Rec. **5**: 666, 1822.
3. Tanret, C.: Compt. rend. Acad. d. sc. **81**: 896, 1875.
4. Stoll, A.: Verhandl. d. schweiz. naturf. Gesellsch., 1920, p. 190.
5. Moir, Chassar, and Dale, H. H.: Brit. M. J. **1**: 1119 (June 18) 1932.
6. Barger, George: Ergot and Ergotism, London, Gurney & Jackson 1931.
7. Koff, A. K.: Surg., Gynec. & Obst. **60**: 190 (Feb.) 1935.

ERGONOVINE

Following a long series of investigations, Davis, Adair, Rogers, Kharasch and Legault [8] announced that on Dec. 12, 1934, they had succeeded in isolating and testing clinically a pure, crystalline base from the crude extract, which further study proved to contain most of the desirable oxytocic activity. The name "ergotocin" was given to this new active principle. Independent studies carried on in other laboratories led to similar discoveries.[9] These independent groups assigned different names to this new ergot base, which subsequent chemical comparative analysis proved to be the same. To obviate further confusion, the Council on Pharmacy and Chemistry of the American Medical Association has renamed this new substance ergonovine,[10] although in all our previous communications the new oxytocic principle was called ergotocin. In all our future communications we will refer to this new substance by the name approved by the Council of the American Medical Association.

The Empirical Formula and Chemical Characteristics.—Ergonovine comes under the broad definition of an alkaloid. However, it differs chemically from the previously isolated alkaloids of ergot. Unlike the other alkaloids in ergot, ergonovine is not precipitated by Meyers' reagent in a dilution higher than 1 : 6,000, while the other alkaloids are precipitated by that reagent in dilutions as high as 1 : 2,000,000.

It is a colorless, crystalline material appreciably soluble in water, imparting to the latter a weak alkaline reaction. It may be crystallized in long, fine, needle-shaped forms from such solvents as chloroform, benzene and trichloroethylene (fig. 2).

The empirical formula for ergonovine is $C_{19}H_{23}N_3O_2$. The formula previously reported [11] for ergotocin, $C_{21}H_{27}N_3O_3$, was obtained from analyses on samples dried in vacuo at a temperature of 40 C. This low temperature was selected because we found that prolonged heating at a higher temperature (100 degrees) inactivates the material. Our samples for analyses contained a molecule of alcohol of crystallization, so that when a higher temperature is employed (76 degrees) in drying the samples our analyses are in agreement with those recently reported by Dudley and Stoll.[12] These data are in complete agreement with all our reported results; i. e., the molecular weight and the presence of three active hydrogen atoms in the ergonovine molecule. It is clear, however, that one of these active hydrogens is in the alcohol molecule and the other two active hydrogens are part of the ergonovine molecule.

The degradation of ergonovine in our laboratories has yielded lysergic acid and a base which at the time was the object of further study.[13] In the meantime Jacobs and Craig have identified this basic hydrogen product as propanolamine, and our independent study has led to the same result. From these observations it is quite obvious that ergonovine is a much simpler molecule than ergotamine or ergotoxine. All these substances, however, have a similar structural skeleton (lysergic acid) and our studies of the absorption spectrums corroborate that view.

Ergonovine is a rather unstable substance, and when solutions of the salts are heated in sealed tubes for any length of time the material decomposes, as indicated by darkening of the solution and loss of potency. When kept at ordinary temperatures, solutions of some salts of ergonovine are relatively stable. An investigation is under way in our laboratories at the present time to determine the rate of decomposition of solutions of ergonovine salts and the various factors that influence this decomposition. It should be noted here that, while ergonovine can be assayed by the Smith colorimetric method,[14] it cannot be analyzed by the same procedure employed in the assays of ergotoxin and ergotamine. The chief difference is in the fact that ergonovine when in solution cannot be extracted from water by ether. The method of Smith should be changed to include chloroform as the solvent of extraction. With that modification, ergonovine can be assayed quite readily by following the procedure suggested by Smith. For quantitative assay it is also essential to extract three or four times with chloroform, to make sure that the water solution is thoroughly saturated with salts and that the p_H is not lower than 6.8 and not higher than 8.2.

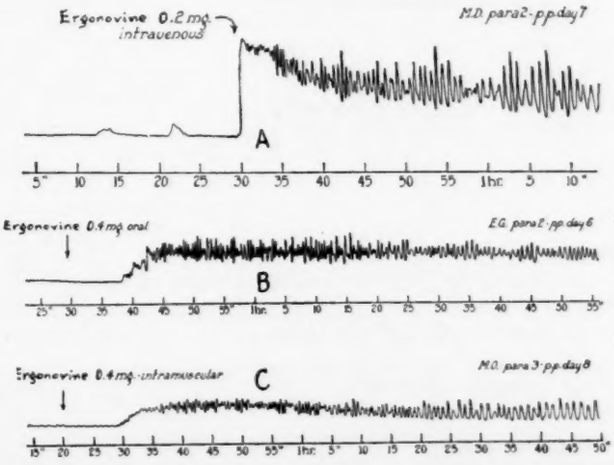
Ergonovine 0.2 mg. intravenous
M.D. para 2 - pp day 7
A
5" 10 15 20 25 30 35 40 45 50 55 1hr 5 10"
Ergonovine 0.4 mg oral
E.G. para 2 - pp day 6
B
Ergonovine 0.4 mg. intramuscular
M.D. para 3 - pp day 8
C

Fig. 3.—Kymographic tracings of uterine motility showing the action of ergonovine on postpartum uteri by (*A*) intravenous, (*B*) oral, and (*C*) intramuscular administration. Note the immediate response of the drug following intravenous administration and the delay of only six to eight minutes following its oral and intramuscular use. The tetany is well maintained, and as it subsides increasingly vigorous contractions occur. The activity of the drug lasts two hours or longer.

Pharmacology.—The new ergot alkaloid may be primarily assayed by the U. S. P. cock's comb method and by the isolated uterine response. It cannot be assayed by the Broom-Clark method.[15] Unlike ergotoxine and ergotamine, it has little inhibitory action on epinephrine. The maleate salt of ergonovine shows little toxicity. The minimum lethal dose when given intravenously is 250 mg. per kilogram in mice and 80 mg. per kilogram in guinea-pigs. That this new ergot principle has a stimulating action on the sympathetics is evidenced by the fact that it causes mydriasis on instillation into the rabbit's eye, constriction of the frog's limb vessels, and relaxation of the rabbit's small

8. Davis, M. E.; Adair, F. L.; Rogers, Gerald; Kharasch, M. S., and Legault, R. R.: Am. J. Obst. & Gynec. **29:** 155 (Feb.) 1935. The Active Oxytocic Principle of Ergot, editorial, J. A. M. A. **104:** 1910 (May 25) 1935. Adair, F. L.; Davis, M. E.; Kharasch, M. S., and Legault, R. R.: Am. J. Obst. & Gynec. **30:** 466 (Oct.) 1935.

9. Dudley, H. W., and Moir, C.: Brit. M. J. **1:** 520 (March 16) 1935. Dudley, H. W.: Proc. Roy. Soc., London, s. B. **118:** 478 (Oct. 3) 1935. Brown, G. L., and Dale, H., ibid. **118:** 446 (Oct. 3) 1935. Stoll, A., and Burckhardt, E.: Bull. d. sc. pharmacol. **42:** 257 (May) 1935. Rothlin, E.: Schweiz. med. Wchnschr. **65:** 947 (Sept. 28) 1935; abstr. Compt. rend. Soc. de biol. **119:** 1302, 1935. Thompson, M. R.: J. Am. Pharm. A. **24:** 748 (Sept.) 1935.

10. Ergonovine, editorial, J. A. M. A. **106:** 1012 (March 21) 1936.

11. Kharasch, M. S., and Legault, R. R.: J. Am. Chem. Soc. **57:** 1140, 1935.

12. Dudley, H. W.: Pharm. J. **134:** 709, 1935. Rothlin.[9]

13. Kharasch, M. S.; Stanger, D. W.; Bloodgood, M. A., and Legault, R. R.: Science **83:** 36 (Jan. 10) 1936.

14. Smith, M. I.: Pub. Health Rep. **45:** 1466-1481 (June 27) 1930.

15. Davis, M. E.; Adair, F. L.; Chen, K. K., and Swanson, E. E.: J. Pharmacol. & Exper. Therap. **54:** 398 (Aug.) 1935. Swanson, H. C. C., and Chen, K. K.: J. Am. Pharm. A. **24:** 835 (Oct.) 1935.

intestine. The latter effect can be abolished by the previous application of ergotamine. The new ergot principle has a demonstrable pressor action on pithed cats but a depressor action in anesthetized animals. In large doses it suppresses respiration. In rats it increases the metabolic rate when injected intravenously in appropriate doses.

Ergonovine is the only alkaloid of ergot which is effective by oral administration in small doses. When administered in doses of from 0.2 to 0.4 mg. by mouth it causes a typical ergot response in six or eight minutes. The uterus develops tonicity and following the initial tetany, which lasts five or six minutes, uterine motility is established which becomes more vigorous in character as the uterine tone diminishes. Good uterine motility continues for at least two hours and often longer, so that frequent administration of the drug is not necessary. Intravenous administration in doses of 0.2 mg. produces an immediate response, particularly marked by the high degreè of tone, which is of great importance in its therapeutic application (fig. 3).

The drug does not affect pulse, blood pressure or urinary output. Its toxicity is extremely low, so that

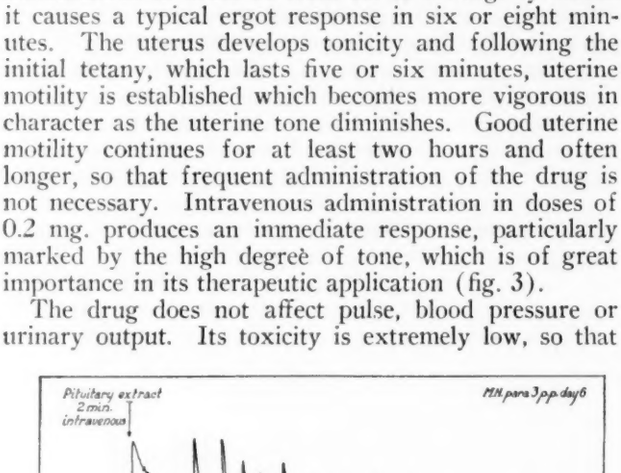

Fig. 4.—The action of posterior pituitary extract lasts less than ten minutes, and the motility induced by this drug is irregular in character.

many times the therapeutic dose causes no undesirable symptoms. Its cumulative action is likewise negligible, since prolonged administration in patients resulted in no signs of toxicity. The drug is colorless, tasteless and odorless and is administered therapeutically with ease. The crystals are entirely stable, so that oral tablets can be kept indefinitely. The aqueous solution, however, is as yet not sufficiently stable. The powder is therefore best dissolved in water just before it is to be administered intravenously.

SOLUTION OF POSTERIOR PITUITARY

Oliver and Schafer[16] in 1895 first prepared an extract of the posterior lobe of the pituitary gland and observed pressor effects on experimental animals. Dale[17] in 1906 demonstrated that the most important pharmacologic action of such an extract was its oxytocic activity. This principle was first applied to the parturient woman three years later by Blair Bell,[18] thereby introducing one of the most important therapeutic agents in obstetrics. Kamm and his co-workers[19] separated the posterior pituitary extract into a fraction containing the oxytoxic principle, "pitocin," and one containing the diuretic and pressor principles, "pitressin."

The aqueous extract of the posterior pituitary gland is stable and can be kept almost indefinitely unless exposed to temperatures above 40 C. It is standardized by a comparison of the response of the excised uterus of the guinea-pigs under standard conditons, with a standard sample of dried posterior pituitary.

The action of posterior pituitary extract in the immediate postpartum period and in the puerperium is quite uniform. Its intramuscular or subcutaneous administration causes the initiation of uterine motility in from three to five minutes. The uterus becomes tetanic, and as the tonus diminishes increasingly vigorous contractions occur. The action of the drug lasts for five or ten minutes and rapidly disappears, to be reinitiated by another dose (fig. 4). The intravenous administration of small doses, 3 minims (0.2 cm.), provokes an immediate response. However, the general reaction to this mode of therapy is quite marked. The patient may develop a marked circumoral pallor, a sense of constriction in the chest, pain in the back of the head, marked palpitation, nausea and occasionally vomiting. The reaction may last several minutes or longer and gradually disappear without any serious effects.

Posterior pituitary extract has a variable effect on blood pressure of normal individuals. Usually they show little or no elevation of blood pressure after therapeutic doses of posterior pituitary. The pallor which may develop is not an index of a change in blood pressure. However, in patients with hypertension a marked elevation occurs after intravenous or intramuscular administration of the drug. The rise in pressure is transitory and is followed by a return to normal. Posterior pituitary extract also causes a diminution in the urinary output, which likewise becomes more marked in patients with kidney damage. A temporary anuria may occur in patients with toxemia of pregnancy. These abnormally marked effects of pituitary solutions on blood pressure and urinary output in patients exhibiting toxemia of pregnancy make the use of this drug undesirable in this group.

OTHER OXYTOCIC DRUGS

Quinine, an alkaloid derived from cinchona bark, has maintained a wide clinical popularity. It has been used to augment weak, ineffective labor pains but more commonly in conjunction with castor oil for the induction of labor. Its oxytocic action is very mild and unreliable, even though it is administered in doses large enough to evoke a general reaction. It is our impression that quinine does seem to sensitize the pregnant uterus at or near term, so that it becomes more responsive to the more potent oxytocics, posterior pituitary extract and ergonovine. Thus, its use in obstetrics is rather restricted.

Hydrastis has been combined with ergot to augment the oxytocic effect. In large therapeutic doses hydrastis alone does not evoke regular uterine motility or accentuate motility initiated by ergot.

INDICATIONS FOR OXYTOCIC DRUGS

Use in Nonpregnant Patients.—The present indications for oxytocics are almost limited to pregnancy and its complications. Although posterior pituitary extract and ergot will cause tonicity and contractions of the nonpregnant uterus, they are rarely indicated except for temporary relief of bleeding. All bleeding, whether in the form of profuse or prolonged menses or bleeding between the menstrual periods, should be considered of sufficient pathologic import to merit a careful investigation and a correct diagnosis. It is never justifiable to give oxytocics as a temporary expedient in the hope that the bleeding will cease. Once a diagnosis is positively established, ergonovine can be given in the hope

16. Oliver and Schafer: J. Physiol. **18**: 276, 1895.
17. Dale, H.: J. Physiol. **34**: 163, 1906.
18. Bell, W. B.: Brit. M. J. **2**: 1609, 1909.
19. Kamm, O.; Aldrich, T. B.; Grote, I. W.; Rowe, L. W., and Bugbee, E. P.: J. Am. Chem. Soc. **50**: 573, 1928.

that bleeding can be temporarily checked. Usually the underlying pathologic condition must be corrected to obtain permanent relief.

Therapeutic Abortion.—By medicinal means this is rarely successful. The uterus is poorly responsive to posterior pituitary extract early in pregnancy. Many investigators feel that the corpus luteum of pregnancy inhibits the uterine response to posterior pituitary extract. That this is true in animal experimentation, notably in the rabbit, is borne out by a host of investigators. Less is known about the uterine response to ergot early in pregnancy. Clinical experience justifies the conclusion that it is almost impossible to interrupt the normal gestation early in its course by the known oxytocic drugs.

When normal pregnancy has been interfered with, such as in inevitable or incomplete abortions, the oxytocic drugs can be used to hasten or complete the process. Posterior pituitary extract and ergot can be used to initiate uterine motility or to increase it when already initiated. We have observed the results obtained in a small group of these cases and have found that the new ergot alkaloid has a beneficial effect. In some of the cases the retained secundines were expelled and the hemorrhage was controlled. Following a complete or completed abortion, ergonovine, given orally for several days, is of distinct value to control bleeding and favor normal involution.

Induction of Labor.—The medicinal induction of labor becomes more successful the closer to term it is used. At least half the cases can be induced when the induction is tried at term. Before term when induction is indicated because of some complication of pregnancy, medicinal induction must be combined with some mechanical means. The method of medicinal induction of labor at or near term used at the Chicago Lying-in Hospital consists of the following procedure: Castor oil, 1½ ounces (42 cc.), is given early in the morning, followed two hours later by quinine in 3 grain (0.2 Gm.) doses at hourly intervals for four or five doses, followed by graduated doses of posterior pituitary extract, beginning with half a minim (0.03 cc.) and increasing half a minim at each dose fifteen minutes apart until 3 minims (0.2 cc.) is given. The latter dose can be repeated until a total of 1 cc. is used. The uterus should be carefully observed, and if it exhibits tetanic contractions so that the fetal heart tones are interfered with, the posterior pituitary extract is discontinued. The administration of the drug ceases when regular, rhythmic contractions are initiated anywhere in the course of the induction.

Labor.—The oxytocic drugs are rarely indicated during the first and second stages of labor. Although Stearns [2] first introduced ergot to stimulate labor pains and shorten the course of labor, clinicians soon noted the ill effects of the indiscriminate use of the drug. Ergot soon lost its popularity in labor, and today it has no place in the first and second stages. Posterior pituitary extract is rarely indicated during the first and second stages of labor. It is occasionally administered during this period in cases of uterine inertia in 2 or 3 minim (0.13 or 0.2 cc.) doses when the ineffective contractions result in a long painful labor with little or no progress. Its use under such circumstances is fraught with great danger for the patient and her baby. Uterine tetany, abnormal uterine motility, with possible complications at delivery and intra-uterine asphyxia of the baby, are not uncommon sequelae. Rupture of the uterus [20] is a real danger. Because of these untoward complications, posterior pituitary extract as well as ergot must be omitted from the therapeutic regimen of this period of labor.

Posterior pituitary extract can be administered immediately following the birth of the baby to facilitate the third stage of labor. The placental stage can be shortened and hemorrhage decreased by this means. The objection to the routine use at this period of labor is that the drug may cause a contraction zone at the lower uterine segment, resulting in the incarceration of a partially or completely separated placenta. This interference with the normal mechanism of separation and expulsion of the placenta may eventuate in a postpartum hemorrhage. The use of posterior pituitary extract in the third stage of labor should be confined to hospital practice, where complications of the third stage, which may result from its use, can be more safely managed than in the home. It should not be used before the completion of the first phase of this stage or placental separation.

In the immediate postpartum period, hemorrhage due to uterine atony is the most important indication for the use of oxytocics. Postpartum hemorrhage accounts for from 10 to 12 per cent of the maternal deaths that occur every year. It is the complication that is ever before the mind of the obstetric attendant. The rapidity of its onset, its magnitude, the rapid development or the serious symptoms often overwhelm the accoucheur. It is here that oxytocics fulfil their greatest rôle.

One must remember that uterine atony is not the only cause for postpartum hemorrhage. Trauma of the soft parts, such as deep cervical tears and uterine rupture, may lead to serious and even fatal postpartum bleeding, which, needless to say, no oxytocics can control. Portions of placenta retained in the uterus may account for uterine bleeding and interfere with the action of oxytocics. A careful diagnosis of the cause of the hemorrhage must be made to determine the etiology.

Posterior pituitary extract in 1 cc. doses subcutaneously or intramuscularly can be given. Small doses, 3 minims or less, can be given intravenously in an emergency regardless of the possible reaction. Ergonovine is the ideal drug and can be given intravenously in 0.2 mg. doses for its immediate and sustained action. This drug can likewise be given by mouth if the patient is not under anesthesia.

We have had an opportunity of observing the action of ergonovine in some twenty labors complicated by postpartum hemorrhage. The following brief case summaries will illustrate the spectacular action of this new oxytocic agent:

CASE 1.—A primipara, aged 20, was admitted to the hospital one and a half hours following home delivery, Jan. 13, 1936. The pulse was 150 and the blood pressure 55 systolic, 20 diastolic. The placenta was retained in utero, and attempts at manual removal at home failed to deliver it. Posterior pituitary extract, 1 cc., had been administered at home for the profuse hemorrhage. Treatment in the hospital consisted of manual removal of the placenta and immediate intravenous administration of 0.2 mg. of ergonovine. The uterus contracted firmly and remained so. No further oozing occurred. She received a transfusion of 700 cc. of blood and one of 600 cc. of 10 per cent dextrose solution.

CASE 2.—A quintipara, octigravida, aged 28, entered the hospital, Feb. 12, 1936, with a transverse presentation. The pulse was 90 and the blood pressure 120 systolic, 80 diastolic. A Voorhees bag was introduced into the uterus and after a

20. Telfair, J. H.: Am. J. Obst. **73**: 655 (April) 1916. McNeile, L. G., ibid. **74**: 432 (Sept.) 1916.

twenty-four hour labor sufficient dilatation and effacement were obtained to deliver the baby by version and extraction. Following the manual removal of the placenta a profuse vaginal hemorrhage occurred as the result of uterine atony. Ergonovine, 0.2 mg. intravenously, was followed by immediate contraction of the uterus and cessation of bleeding. The blood loss was 1,000 cc. (measured).

PUERPERIUM

The use of oxytocic drugs in the puerperium has enjoyed almost universal popularity. Ergot in its various forms has been the therapeutic bulwark for this period. It has been credited with hastening normal involution, decreasing the likelihood of late postpartum bleeding, limiting the likely spread of intra-uterine infection if present, and helping to maintain the genital organs in the best state possible. The present study was undertaken to evaluate carefully the therapeutic possibilities of ergot in its most desirable form, ergonovine.

A group of 200 women were placed on ergonovine during their first three days of the puerperium. Careful observations were made of all the factors involved in normal and abnormal involution of the uterus. This group on routine ergot therapy was contrasted with a similar group in which no oxytocic drugs were given

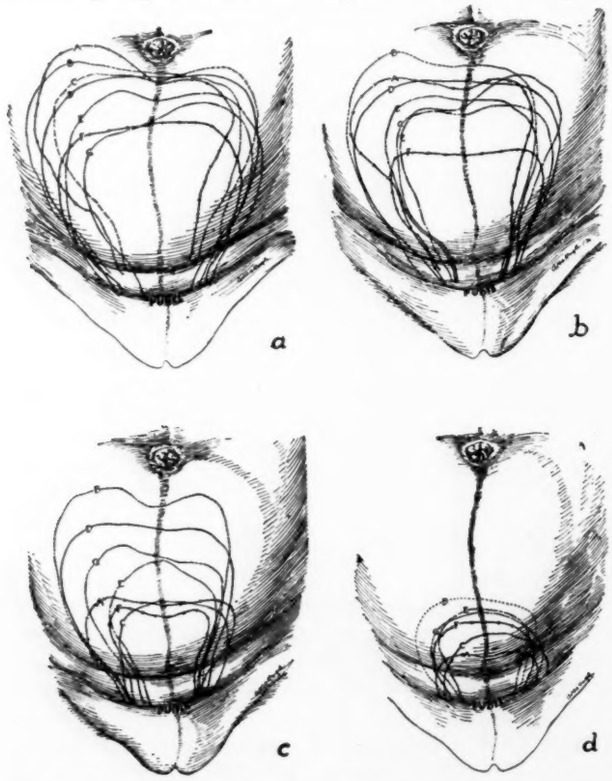

Fig. 5.—Normal uterine involution in a series of normal puerperal women of various ages and parity: *a*, first day; *b*, fourth day; *c*, seventh day, and *d*, tenth day.

during the puerperium. The observations and impressions gleaned from this careful investigation are here recorded:

Physiology of Postpartum Involution.—The physiologic process by which the puerperal uterus is reduced to approximately one-twentieth its size and restored to the normal nonpregnant state is known as involution. It involves desquamation and expulsion of the remaining decidua basalis, the decrease of the individual constituent muscle fibers to a fraction of their hypertrophied state, and the ultimate exteriorization, separation and expulsion of the placental site. When the uterine cavity is again lined by normal endometrium, the uterus has completely reverted to its nonpregnant state. The duration of the process is variable but usually is eight or ten weeks in the normal individual.

The mechanism of involution is as yet unknown; however, many factors influence the process. Metabolic and catabolic processes must play an important rôle in the physiologic atrophy of the uterus. Uterine tone and motility must likewise have an important bearing. In an experimental study on the physiology of the puerperal uterus, uterine tone and motility were recorded on graphs by the introduction of a small rubber balloon into the uterine cavity.[21]

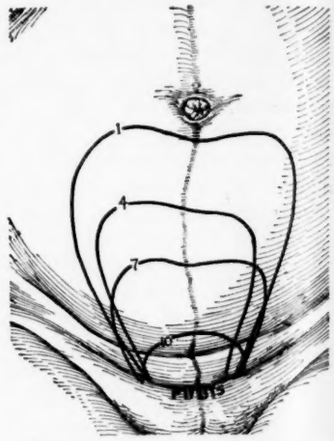

Fig. 6.—A composite diagram to illustrate the uterine involution in a group of 200 women who received ergonovine maleate during the first three days of the puerperium.

It was found that immediately following delivery there is considerable tone in all uteri and regular rhythmic contractions occur. By the end of the fifth day of the normal puerperium the majority of primiparas still show considerable tonicity and regular uterine motility. However, multiparas vary considerably. About half the patients exhibit no tone or uterine motility, and the small bag may remain in the uterus for several hours without eliciting any response. About 25 per cent of the cases exhibit irregular contractions, spasmodic in character, which may be excited to regularity, increased frequency and amplitude by the uterine bag or by various oxytocic drugs. The remaining cases show regular rhythmic contractions altered little from the onset of the puerperium. Little additional change has occurred by the end of the ninth or tenth day. As all the patients observed in these and subsequent studies were normal, it was difficult to evaluate the effect of uterine motility on delayed or abnormal involution. Clinical observation, however, has given the impression that the boggy, atonic condition of the uterus which does not respond to external stimulation seriously interferes with its normal involution.

The criteria of involutional progress are the extent of atrophy of the uterus, the general consistency of the musculature and its lack of irritability to suitable stimuli, and the character and amount of the lochia. These factors are difficult to evaluate, for they are subject to considerable variation in perfectly normal individuals. However, one can gain definite impressions by careful observations.

A group of normal puerperal women were followed carefully to note the rate of the progressive atrophy of the uterus. The uterine outline was accurately sketched from day to day during their ten day hospital stay. Figure 5 represents reproductions of uterine outlines drawn to scale in representative cases. Needless to say, the bladder was empty when each outline was made. From the foregoing one can see that the uterus is always palpable above the symphysis at the tenth postpartum day and that its height averages 4 or 5 cm.

21. Adair, F. L., and Davis, M. E.: Am. J. Obst. & Gynec. **27**: 383 (March) 1934.

above this level. Involution progresses at a much more rapid rate during the first five days than during the second five days. Physiologic uterine atrophy takes place at a progressively diminishing rate.

The group of patients that received ergot in the form of ergonovine exhibited a more rapid decrease in the size of the uterus. Figure 6 is a composite reproduction, drawn to scale, of the uterine outlines of the 200 patients on ergot therapy. This increased rate of involution was most apparent during the last few days of the hospital stay. The rapid return of the uterus to normal size is desirable because a large, heavy uterus probably predisposes to malpositions in the late puerperium.

Improper drainage of lochial secretions due to malpositions of the uterus and to inactivity and the lack of tone on the part of the muscular organ has been said to delay involution. Our work on the postpartum patient has demonstrated that lochial retention is present in almost 25 per cent of the patients. The escape of 25 or 30 cc. of retained fluid has been noted in this group of patients when the rubber balloon is introduced for kymographic study. In quite a number of the patients as much as from 100 to 200 cc. has escaped. It must be remembered that only normal cases exhibiting no symptoms referable to the retention of lochia were studied. Our puerperal patients are not quiescent but lead a rather active life while confined to bed. Thus frequent changes in posture have not led to satisfactory drainage. Further study of this group has revealed a lack of uterine motility and tone. Stimulation of these patients by oxytocic drugs should favor involution. The actual character of the lochia is probably an unimportant factor in involution.

Infection of the uterus or its appendages seriously delays involution. The uterus remains large, soft, and unresponsive to stimulation. This condition favors the retention of infectious contents in its cavity and favors the spread of infection in the genital organs and to environmental structures. The large thrombosed vessels of the placental site may be incompletely cut off from the circulation, favoring extension of the thrombi and embolic phenomena. Theory and practice have favored the stimulation of tonicity and uterine motility in these circumstances.

Summary of Study on Patients Who Received Ergot and Controls

	200 on Ergot Therapy		200 Control Cases	
	Cases	Per Cent	Cases	Per Cent
Morbidity*	37	18.5	53	26.5
In hospital over 10 days	5	2.5	13	6.5
Operative incidence	54	27.0	55	28.0
Episiotomies	156	78.0	133	68.6

* Any patient who exhibited a temperature of 38 C. (100.4 F.) or over on any day after the first twenty-four hours was listed as morbid.

The accompanying table summarizes the data obtained from a study of the group of patients that received ergot during the puerperium and of the control group. These groups are far too small to provide more than a general impression that the increased uterine tonicity and motility resulting from the administration of ergot had a favorable influence on morbidity.

The use of oxytocic drugs in the puerperium [22] is of value in aiding involution by increasing uterine tone and increasing or reinitiating uterine motility. This uterine activity results in complete evacuation of the uterine cavity of its lochial secretions, a more rapid decrease in the size of the uterus, and perhaps some limitation of the spread of infection if present. Ergot therapy is therefore of value when involution is not progressing normally because of a lack of uterine tone and motility, because of retained secretions, or in the presence of uterine or general infection. The prophylactic use of ergot to assure a normal involution is probably of some value, although further studies with ergonovine will be necessary to confirm this impression. A careful follow up of patients for six months and longer will ascertain whether the incidence of malpositions is less in patients receiving ergot therapy in the early puerperium.

It has been our practice to prescribe ergot in the puerperium for delayed involution. At present ergonovine maleate,[23] from 0.2 to 0.4 mg. three times daily, is given to patients who have had a postpartum hemorrhage, a difficult forceps, intra-uterine manipulation, abnormal lochia, fever regardless of the cause, or delayed involution without cause. This therapy is kept up for at least three days or as long as is necessary. If uterine contractions become too painful, the dose of ergonovine maleate is reduced or the drug omitted.

5848 Drexel Avenue.

22. Sonnenfeld, E.: Deutsche med. Wchnschr. **57**: 16 (Jan. 2) 1931. Hahn, K.: Med. Welt **6**: 1617 (Nov. 5) 1932.

23. Ergotrate is the trade name of ergonovine maleate (Lilly), which was used in our experimental and clinical observations.

HYPERVENTILATION IN ABDOMINAL SURGERY

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Abdominal operations are associated with a very much higher incidence of pneumonia, embolism and atelectasis than extra-abdominal procedures, and many theories regarding the method of their production have been advanced. Muller, Overholt and Pendergrass [1] have shown that hypoventilation, diminished vital capacity and subsequent compression of the bases of the lungs occur after practically all upper abdominal operations, and that these conditions were the result of elevation of the diaphragm and reduction in the normal diaphragmatic excursions, as shown by x-ray studies. Graham, in a discussion of this paper, referred to the value of carbon dioxide inhalations on the operating table for the reduction of the incidence of pulmonary complications.

On the assumption that the entrance of air into the abdominal cavity might be instrumental in causing the elevation of the diaphragm and limitation of its excursions, this investigation was undertaken to determine the value of inhalations of carbon dioxide during closure of the abdominal cavity, and at the same time to report the incidence of pulmonary complications occurring at the Misericordia and Fitzgerald-Mercy hospitals. The study began Nov. 1, 1934, and was continued until June 1, 1935. The patients were admitted to the surgical services of Drs. Beltran, Kelly, Muller and myself. The group comprises 411 abdominal operations. Carbon dioxide was administered until deep respiration was produced. The amount was variable, the average being a 10 per cent mixture of carbon dioxide with oxygen, given for about three

Read before the Philadelphia Academy of Surgery, Oct. 7, 1935.

1. Muller, G. P.; Overholt, R. H., and Pendergrass, E. P.: Postoperative Pulmonary Hypoventilation, Arch. Surg. **19**: 1322 (Dec.) 1929.

minutes. Care was taken not to tire the patient unduly or to raise the blood pressure excessively. Of the 411 patients admitted, 135 received this treatment during the process of closure of the abdominal cavity.

Early in our experience my associates and I were impressed with the ability of this gas to deetherize the patient, as reported by White,[2] and to improve the blood pressure, as reported by Henderson.[3] In addition to the inhalation of carbon dioxide in the operating room we advised all abdominal patients to expand the lungs by deep breathing during the immediate postoperative stage, as suggested by Scott.[4]

Henderson,[5] in one of his contributions, concludes that the "inhalation of carbon dioxide, by counteracting acapnia and inducing deeper breathing, inflates the lungs and prevents the development of atelectasis, thus becoming a specific preventive of the postoperative pulmonary complications that lead to pneumonia."

TABLE 1.—*Group of 411 Abdominal Operations*

		Pulmonary Complications
Appendix	187	5
Gynecology	93	0
Colon	16	0
Stomach	23	0
Hernia	40	0
Gallbladder	37	2
Small intestine	15	0
Totals	411	7, or 1.7%

Cutler,[6] in discussing postoperative complications, concludes that in view of the evidence now at hand embolism certainly plays a rôle in many of these pulmonary complications, and for this reason everything possible should be done to avoid spreading infection and to handle tissues with the utmost care. Such procedures as the proper ligation of an open vein or, better still, the placing of clamps on all vessels before division so that tissue juices and bacteria do not enter such channels, are of major importance. The only thing in common to all surgical patients is the wound, and it behooves surgeons to look there for postoperative difficulties and not lay the blame for such sequelae on extraneous matters.

In September 1925 Lee [7] was the first to suggest any form of treatment that had a favorable effect on fully established atelectasis. In collaboration with Jackson, bronchoscopic aspiration in several cases produced sufficient improvement in the patient's condition and the degree of atelectasis to establish this as an accepted form of threapy. Other papers by Lee have materially increased interest in the management of this severe postoperative complication, especially the animal experiments of Lee and Tucker,[8] wherein very thick tenacious bronchial secretion was removed from a patient suffering from atelectasis. This substance was injected into the main bronchus of a dog, producing massive atelectasis, which was completely relieved after aspiration of the mucus. These experiments are the only conclusive data submitted to date on the etiology and cure of this condition.

Scott and Cutler [9] believe that atelectasis is initiated by a nervous reflex, probably largely vasomotor, which results in a narrowing of the lumen in the peripheral bronchioles by venous engorgement, swelling of the mucous membrane, and the elaboration of a tenacious secretion.

In our efforts to secure a comparable group of cases we included all patients on whom abdominal operations were performed. In order to have the conditions identical, the two groups were simultaneously conducted. Table 1 shows the varied types of operations that were performed.

It will be noted that appendectomy, for both acute and chronic conditions, was performed on 187 patients and was associated with five pulmonary complications, a most striking feature being the fact that four occurred in patients who were operated on for acute appendicitis. This is in keeping with the observation of King; [10] namely, the incidence of pulmonary complications is markedly increased in operations that are performed in an already infected area. The group of ninety-three cases under the heading of gynecology included all types of pelvic operations in which it was necessary to open the abdominal cavity. There were no pulmonary complications, although thirteen operations were performed for chronic pelvic inflammatory disease.

The operations on the colon consisted of colostomy and resection of the colon for carcinoma and were not attended with any major pulmonary complication. The twenty-three operations on the stomach were practically all gastro-enterostomies. Although this operation should be associated with a high incidence of complication, none occurred.

TABLE 2.—*Pulmonary Complications in 411 Abdominal Operations*

Name	Age	Diagnosis	Complication	Carbon Dioxide	Result
L. G.	51	Acute appendicitis	Bronchopneumonia	Yes	Recovered
J. T.	4	Acute appendicitis	Empyema	No	Died
M. M.	31	Acute appendicitis	Pleurisy with effusion	Yes	Recovered
T. R.	44	Acute appendicitis	Embolism, right	No	Recovered
M. M.	31	Acute cholecystitis	Atelectasis, right	No	Recovered
A. N.	15	Chronic appendicitis	Collapse, left	No	Recovered
A. F.	69	Chronic pancreatitis	Embolism, right	Yes	Died

Herniorrhaphy carries a higher incidence of pulmonary complications than is apparently justified by the severity of the operative procedure. Since this operation is always done in a clean area and there is very little motion of the abdominal wall in this region, it is difficult to assign a single etiologic factor for the production of complications in the lungs.

2. White, J. C.: Deetherization by Carbon Dioxide Inhalation, Arch. Surg. **7**: 347 (Sept.) 1923.

3. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxide After Anesthesia and Operation, J. A. M. A. **74**: 783 (March 20) 1920.

4. Scott, W. J. M.: Massive Atelectasis and Postoperative Pneumonia, J. A. M. A. **93**: 101-103 (July 13) 1929.

5. Henderson, Yandell: Acapnia as a Factor in Postoperative Shock, Atelectasis and Pneumonia, J. A. M. A. **95**: 572-575 (Aug. 23) 1930.

6. Cutler, E. C.: Postoperative Complications, Proceedings of the Inter-State Post-Graduate Medical Assembly of North America, Nov. 5, 6, 7, 8, 9, 1934, Philadelphia.

7. Jackson, Chevalier, and Lee, W. E.: Acute Massive Collapse of the Lungs: Discussion of Its Mechanism and of Its Relation to Foreign Bodies in Bronchi and Postoperative Complications, Ann. Surg. **82**: 364 (Sept.) 1925.

8. Lee, W. E., and Tucker, Gabriel: Postoperative Pulmonary Atelectasis, Atlantic M. J. **31**: 284 (Feb.) 1928.

9. Scott, W. J., and Cutler, E. C.: Postoperative Massive Atelectasis: II. The Effect of Hyperventilation with Carbon Dioxide, J. A. M. A. **90**: 1759-1763 (June 2) 1928.

10. King, D. S.: Postoperative Pulmonary Complications: I. A Statistical Study Based on Two Years' Personal Observation, Surg., Gynec. & Obst. **56**: 43-50 (Jan.) 1933; II. Carbon Dioxide as a Preventive in a Controlled Series, J. A. M. A. **100**: 21-26 (Jan. 7) 1933.

Of the thirty-seven gallbladder cases, two pulmonary complications occurred. Cholecystectomy was performed in twenty-three patients for chronic and on three patients for acute conditions. Cholecystostomy was performed for acute cholecystitis on six patients and for chronic pathologic processes on five. The operations on the small intestine included resection, enterostomy and adhesions. Although the group was small there were no complications.

Table 2 is a summary of the complications described. It should be noted that five occurred following operations for acute pathologic conditions, while two resulted from operations that were performed for chronic processes.

REPORT OF CASES

CASE 1.—L. G., a woman, aged 51, was admitted to the Misericordia Hospital Feb. 24, 1935, with generalized peritonitis and maximum pain over the gallbladder. Operation was deferred for eight hours in order to promote localization of the process, as well as to make the diagnosis more definite. At the time of operation, tenderness and rigidity were localized over the right lower quadrant. The abdomen was opened through a low right rectus incision, and a large quantity of pus and a ruptured appendix were removed. Drainage was instituted. On the second postoperative day bronchopneumonia developed, which was verified by x-ray examination. A complete recovery occurred and the patient was discharged after eighteen days. Carbon dioxide was given during the process of closure of the abdominal cavity.

CASE 2.—J. T., a boy, aged 4, was admitted to the Misericordia Hospital Jan. 10, 1935, with an appendiceal abscess and a gangrenous appendix, which was removed. He was readmitted to the hospital February 4 with a secondary abscess in the left lower quadrant of the abdomen, which was excised and drained. One week after the second operation, evidence of pleural effusion occurred and positive blood culture for hemolytic streptococcus was secured. Aspiration of the chest revealed pus, and a rib resection was performed. Death occurred sixteen days after admission. The patient was not given carbon dioxide.

CASE 3.—M. M., a woman, aged 41, was admitted to the Misericordia Hospital April 14, 1935, and operation revealed a generalized peritonitis with a perforated appendix. Drainage was instituted. One week after operation the patient developed acute pain over the posterior aspect of the right chest, followed by effusion of clear fluid, which was removed by aspiration. A complete recovery ensued. Carbon dioxide was given for three minutes during closure of the abdominal cavity.

CASE 4.—T. R., a man, aged 44, was admitted to the Misericordia Hospital April 12, 1935, and was operated on for a localized peritonitis and an acutely inflamed gangrenous appendix, which was removed. Drainage was instituted. Ten days after operation the patient suffered from an acute pain in the right side of the chest. A diagnosis of pulmonary embolism was made. X-ray examination of the chest revealed a small area of consolidation in the right lobe. The patient made a complete recovery. Carbon dioxide was not given.

CASE 5.—M. M., a woman, aged 31, was admitted to the Misericordia Hospital March 31, 1935, with a diagnosis of acute cholecystitis and chronic appendicitis. The gallbladder and appendix were removed. On the second postoperative day lobular pulmonary atelectasis occurred, which was verified by x-ray examination. A complete recovery ensued with postural drainage. Carbon dioxide was not given during closure of the abdominal cavity.

CASE 6.—A. N., a boy, aged 15, was operated on for chronic appendicitis. The operation was performed without any complications or difficulties. On the day following operation, collapse of the left lung occurred. Relief was obtained by postural drainage. The patient made a complete recovery. No carbon dioxide was given.

CASE 7.—A. F., a woman, aged 69, was admitted to the Misericordia Hospital Feb. 11, 1935, with an elevated temperature and a white blood count of 13,000. She also had jaundice and pain over the gallbladder. After five days a cholecystostomy was performed and the operation revealed a contracted gallbladder with acute inflammatory reaction in the common duct and enlargement of the pancreas. Although the final diagnosis was chronic cholecystitis and pancreatitis, there were some evidences in the case of acute inflammation. During the following two weeks her temperature was continually above normal. March 3 she expectorated bloody mucus which was diagnosed as embolus by physical signs. March 9 the patient died. Carbon dioxide had been given.

COMMENT

The group of 135 cases in which carbon dioxide was given, as shown in table 3, was associated with three pulmonary complications, including bronchopneumonia, pleurisy with effusion, and embolism. One of the patients died and two recovered, making a pulmonary morbidity of 2.2 per cent and a pulmonary mortality of 0.74 per cent. Carbon dioxide was not given to 276 patients. In four cases, which included empyema, embolism and two cases of atelectasis, pulmonary complications occurred, making a morbidity of 1.4 per cent and a mortality of 0.36 per cent.

In a personal communication Dr. E. C. Cutler suggested that comparable cases be used for the study. In following out this plan it was found that of the 124 cases diagnosed as acute appendicitis carbon dioxide was given in thirty-three and not given in ninety-one,

TABLE 3.—*Group of 411 Abdominal operations*

Carbon Dioxide	No. of Cases	Pulmonary Morbidity	Pulmonary Mortality
Given	135	2.2%	0.74%
Not given	276	1.4%	0.36%
Totals	411	1.7%	0.48%

making an incidence of 6 per cent pulmonary complications in the former group and 2 per cent in the latter. Of the sixty-three patients diagnosed as having chronic appendicitis, seventeen received carbon dioxide and forty-six did not, resulting in no pulmonary complications for the former and one case of collapse in the latter. Under gallbladder surgery there were thirty-seven cases, in seven of which carbon dioxide was given, and in thirty not given, making an incidence of 14 per cent for the former and 3.3 per cent for the latter.

CONCLUSIONS

1. A study was made of 411 abdominal operations to determine the value of carbon dioxide inhalations during closure of the abdomen.

2. It would appear from this study that carbon dioxide is of no value in the prevention of postoperative pneumonia.

3. This group of cases accentuates the importance of infection in the operative field as an etiologic factor in the production of postoperative pulmonary complications.

255 South Seventeenth Street.

Vitamin in Salmon Oil.—The salmon, on the other hand, is a fat fish; it has much body fat and its store of fat-soluble vitamin is not contained in its liver only but in the fat of its body as a whole. The concentration of vitamin in salmon oil is therefore not usually so high as in the liver oil of a much leaner fish; but the total amount of fat-soluble vitamin furnished by salmon (fresh and canned) is quite large.—Sherman, Henry C.: Food and Health, New York, Macmillan Company, 1934.

MORTALITY OF NEW-BORN INFANTS IN CHICAGO DURING 1935

WITH SPECIAL REFERENCE TO THE PREMATURE

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Survey of Deaths of Infants Under 30 Days of Age.—In order to determine ways of further decreasing infant mortality in Chicago during 1935, the Board of Health made an intensive field investigation of the deaths of every infant aged 30 days or less. A questionnaire was devised covering sixty-eight items relating to the prenatal period, the process of delivery, and postnatal care. This questionnaire served as a framework on which the whole structure of the inquiry was built and developed.

Table 1 presents the details concerning the birth rates, stillbirth rates, and infant mortality rates in Chicago for the period from 1925 to 1935 inclusive, showing especially the rates for deaths under 1 month and from 1 month to 12 months. The accuracy of calculation of infant mortality rates on the basis of

TABLE 1.—*Birth Rates, Stillbirth Rates and Infant Mortality in Chicago, 1925-1935*

Year	Total Live Births	Stillbirths		Total Deaths Under One Year of Age		Deaths Under One Month		Deaths One to Twelve Months		Births per 1,000 Total Population
		Number	Rate*	Number	Rate*	Number	Rate*	Number	Rate*	
1925	59,639	2,198	36.9	4,457	74.7	2,208	37.0	2,249	37.7	19.5
1926	60,200	2,242	37.2	4,007	66.6	2,067	34.3	1,940	32.2	19.8
1927	60,888	2,214	36.4	3,822	62.7	2,109	34.6	1,713	28.1	19.6
1928	59,016	2,200	37.3	3,765	63.9	2,049	34.7	1,716	29.1	18.7
1929	58,800	2,142	36.4	3,535	60.1	2,030	34.5	1,505	25.6	18.4
1930	58,083	2,072	35.7	3,102	53.4	1,789	30.8	1,313	22.6	17.2
1931	52,993	1,906	36.0	2,987	56.4	1,662	31.4	1,325	25.0	15.3
1932	49,258	1,535	31.2	2,404	48.8	1,467	29.8	937	19.0	14.0
1933	46,655	1,405	30.1	2,278	48.8	1,454	31.2	824	17.7	13.0
1934	47,955	1,399	29.2	2,289	47.7	1,481	30.9	808	16.8	13.7
1935	49,425	1,328	26.9	1,983	40.1	1,361	27.5	622	12.6	14.2

* Per thousand live births.

the number of reported deaths under 1 year per thousand live births is dependent, among other things, on the completeness of registration of births and deaths. In Chicago a survey carried out by the United States Census Bureau during 1935 showed that there was 99.5 per cent registration of births. It should be noted that the stillbirth rate also has been declining during the period from 1925 to 1935 inclusive. This fact would seem to indicate that the decreasing number of infant deaths cannot be explained as due to a tendency to classify, as stillbirths, infants born alive but dying soon after birth.

During 1935 the Board of Health adopted a number of measures which had been found to be successful in reducing premature deaths at Sarah Morris Hospital.[1] It was felt that establishing the same methods throughout the city at large would aid somewhat in reducing the mortality during the first year of life, especially of premature infants, as well as reducing the number of stillbirths. At the same time the program of infant care which had been instituted before 1935 was continued and enlarged.

At present the program of care for all infants under 2 years of age, including the premature, is as follows:

As soon as a birth is registered, the book "Our Babies," describing in simple language, with many illustrations, the details of infant care, is sent to the mother, and a Board of Health nurse makes a birth registration call at the home, delivering a birth certificate and the first of a series of monthly letters on infant care.

The nurse urges the mother to keep the baby under a private physician's care, but if the mother cannot afford a private physician she is urged to register the infant at one of the twenty-eight Board of Health infant welfare stations or one of the eighteen stations conducted by the Infant Welfare Society of Chicago, depending on the district in which she lives. Each month one of the pamphlets on infant care is sent to the mother. These monthly pamphlets give the important things to be done for the baby each month.

The nurse keeps in touch with the infants who are under the care of private physicians, to make sure that these babies are taken to their doctors regularly. Those not under the care of private doctors and not registered at the welfare stations are visited monthly by the nurse, who at each visit continues to urge medical supervision. If a baby is sick or the home conditions are poor, she makes daily visits to see that the infant is getting proper care and medical attention. If a baby is registered at one of the stations, it is the responsibility of the station nurse to see that he continues to be brought to the station. All nurses have a panel of cards (one card for each baby in the district), which enables them to keep track of these babies and permits the supervisors to keep a definite check on the progress of the work. A copy of this card is shown herewith.

Whenever a nurse finds a baby in urgent need of medical care, or whenever home conditions are not adequate for good infant care, every possible effort is made to have the child hospitalized.

Another measure taken during 1935 was the adoption of standardized rules for the care of new-born and premature infants in hospitals. These rules and regulations were sent to all the hospitals and, as a result, improvement in hospital facilities and procedure has resulted, as determined by Board of Health surveys made before and after their passage. These surveys were carried out by a nurse with many years of experience as a nurse in one of Chicago's largest hospitals. Regulations for obstetric care were also adopted.

During 1935, of the 1,361 infants who died under 30 days of age, 795, or 58.4 per cent, were considered to be premature; that is, they were of less than eight and a half months' gestation and were regarded as premature by the physician. Eighty-four and eight-tenths per cent weighed less than 5 pounds. In 450 instances, prematurity alone was given as the cause of death on the death certificate, while in the other 345 cases there were other causes of death besides the prematurity. It is obvious, then, that one of the most promising fields of endeavor for the further reduction of infant mortality lies in an effort to save the lives of premature infants.

1. Hess, J. H.: J. Pediat. **8**: 104 (Jan.) 1936.

It has been pointed out by a number of observers [2] that, for the premature infant who has any possibility of surviving, the chances of living can be improved by keeping the baby warm enough from the moment of birth, by giving adequate and proper food, that is, breast milk (or the best possible substitute), by preventing infections, and by giving intelligent nursing and medical care.

In view of this fact, the Board of Health adopted several measures which, it was felt, would be of advantage in saving the lives of prematurely born babies. First, a careful survey was made of all the hospitals in the city to determine whether or not they were provided with adequate facilities to care for the prematurely born infant. Each hospital was rated on a basis of the facilities available. The institutions that lacked facilities were encouraged to make corrections, and they equipped their nurseries to meet the needs for the proper care of premature infants. As a result of these endeavors, several of the hospitals constructed "premature" nurseries; many bought heated beds and provided equipment for the administration of oxygen, as well as other devices that have been found of value in reducing mortality from prematurity.

TABLE 2.—*Labor Onset*

Type of Onset	Premature* Infants
Spontaneous	697
Induced	44
Cesarean section	51
Unknown	3
Total	795

* In tables 2 to 16 inclusive the figures refer to premature infants who died.

Second, the Board of Health passed a regulation making premature births reportable at once by telephone and requiring confirmation in writing within twenty-four hours. As soon as such a birth is reported, a nurse is assigned to cooperate with the doctor in any way she can to give the infant adequate care.

Third, an incubator ambulance was provided to transport these infants, without charge, from homes and institutions where proper facilities are not available. Two of the larger hospitals of the city, equipped with incubator stations, agreed to care, without charge, for the premature infants of indigent parents.

TABLE 3.—*Manner of Inducing Labor*

Manner of Inducing Labor	Premature Infants
Bag	27
Catheter	1
Manual dilation	3
Artificial rupture of membranes	5
Oxytocics	7
Uterine pack	1
Total	44

BM A — JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

INFANTS NAME — DATE BIRTH — DIST. NO.

ADDRESS — PART OF HOUSE

PLACE OF BIRTH

FATHER'S GIVEN NAME

DATE TOXOID GIVEN — COD LIVER OIL — AMOUNT

CONDITION OF HOME: HEAT — CLOTHING — BEDDING — FOOD

ON RELIEF — AGENCY ADDRESS — W. P. A.

MEMBERS HOUSEHOLD SICK — NATURE OF ILLNESS

DEMONSTRATION GIVEN: — SAW DOCTOR LAST

ACTION TAKEN

REMARKS:

BOARD OF HEALTH, CITY OF CHICAGO
AUTOMATIC-VANDEX FORM NO. 35-1283P

Nurse's card.

Some heated beds were secured to be sent, whenever they are needed, to hospitals not equipped with them. These heated beds are also sent to homes for premature infants requiring them.

The Board of Health, with funds supplied by the Mayor of Chicago, established a mother's milk station where breast milk is collected and made available for premature and other infants who are in need of it and whose parents are not able to pay for it.

In connection with the care of the premature infant, instructions were sent to the various hospitals. These stated, especially, the need for the prevention of hand-borne infections. A booklet on the care of the premature infant, written in simple language, was prepared. This is sent to mothers who have prematurely born infants, as well as to all physicians, nurses and others who desire the material.

ANTEPARTUM CARE

Of the 795 premature infants who died, the antepartum care given was ascertained for the mothers of 786 infants. Reports indicate that 389, or 49.5 per cent, received antepartum care that conformed to the minimum requirements.

2. Hess, J. H.: The Care of the Premature Infant. Clifford, S. H.: Reduction of the Infant Mortality, J. Pediat. **5**: 139 (Aug.) 1934. Blackfan, K. D.; Yaglou, C. P., and Wyman, Katherine M.: The Premature Infant, Am. J. Dis. Child. **46**: 1175 (Nov., part 2) 1933.

Adequate antepartum care should comprise supervision over the condition of the mother, beginning not later than the fifth month of gestation. It should include periodic blood pressure readings, regular chemical and microscopic examinations of the urine, Wassermann or Kahn tests, internal pelvic measurements, determination of the position of the fetus and of the existence of heart tones, a complete physical examination, the care of the nipples, attention to diet and elimination, and advice as to exercise, work, recreation and rest.

TABLE 4.—*Indications for Cesarean Section*

Indications	Premature Infants
Previous cesarean section	1
Cardiac disease	3
Pelvic deformity	5
Placentae abruptio	3
Placenta praevia	14
Toxemia	17
Tumors	3
Hydrocephalus	1
Other	3
Not stated	1
Total	51

TABLE 5.—*Indication for Operative Procedure in Delivery Other Than Cesarean Section*

Indications	Premature Infants
Pelvic deformity	2
Essential hypertension	1
Placenta praevia	8
Toxemia	6
Uterine bleeding	1
Uterine inertia	4
Fetal distress	2
Fetal malposition	7
Prolapsed cord	4
Prophylactic	11
Protracted labor	2
No progress	1
Breech presentation	2
Other	3
Not stated	2
Total	56

From the figures, it can be seen that the antepartum care given was not adequate in half the cases. In some instances the existence of a contracted pelvis or high sacral promontory, exostoses, tumors or other obstacles to normal delivery remained undiscovered until labor was in progress, notwithstanding a record of pelvic measurements. In many of these cases only external measurements were made. Because of failure to make internal measurements, obstructions resulting in the infant's death were not discovered. Toxemia was not discovered until it was well advanced.

Inadequate antepartum care is a large factor in producing deaths in premature babies. Unrecognized and untreated pathologic conditions in the expectant mother endanger the life of an infant. Early discovery of such conditions makes it possible to treat them. If they cannot be corrected, at least pregnancy may be prolonged to as close to term as possible, and the method of delivery that is safest for the child may be planned and carried out.

SEROLOGIC TEST FOR SYPHILIS

Information about the serologic reactions was obtained on 789 mothers of premature infants who died. Of 413, or 52.3 per cent, who had the test, twenty-three, or 5.6 per cent, were positive. It is obvious from these figures that serologic tests are not carried out on pregnant women with anywhere near the frequency with which they should be done.

The making of a Wassermann and Kahn test early should be included as a necessary part of the antepartum care of the mother.

DELIVERY

Breech presentation was more frequent among premature infants than among full-term infants. Of the former, 18.6 per cent were breech, and of the latter, 11.6 per cent. The onset of labor was spontaneous for 88 per cent of the premature and for 91.3 per cent of the full-term. For both groups, 6.4 per cent were associated with cesarean section; 5.6 per cent of the premature deaths were in cases in which labor was induced.

The most frequent conditions assigned as indications for inducing labor were toxemia, placenta praevia and uterine bleeding.

The most frequent methods of inducing labor were the use of a bag, oxytocics, manual dilation, and artificial rupture of membranes as shown by table 3.

Forceps and version were more frequently used in the delivery of full-term infants than in delivery of the premature.

Cesarean operations were performed on fifty-one of the mothers of the 795 premature infants who died. The most frequent indications in the case of premature infants for cesarean section were toxemia and placenta praevia, as shown in table 4.

TABLE 6.—*Type of Operative Procedure in Delivery Other Than Cesarean Section*

Type of Operation	Premature Infants
High forceps	1
Mid forceps	7
Low forceps	28
Version	14
Forceps to after-coming head	6
Total	56

TABLE 7.—*Use of Analgesics*

Use of Analgesics	Premature Infants
None	709
Nonquestionable use	38
Questionable use	41
Unknown	7
Total	795

The classic cesarean section was the type most frequently used, being employed in forty-seven of the fifty-one cases.

Table 5 shows the indications for operative procedures in the delivery of premature infants. It can be seen that operative delivery was employed as a prophylactic measure in eleven of the fifty-six cases, or in 19.6 per cent of those in which operative procedures were carried out.

Table 6 shows the types of operation used in the delivery of the fifty-six premature infants. As might be expected, low forceps was the most frequent method of operative delivery.

ANALGESICS

It is shown by table 7 that in forty-one instances out of seventy-nine, or 51.9 per cent, in which analgesics were used, they were employed in a questionable way. The investigation revealed that in some of these instances the amounts used in all probability were a major factor in the death of the child.

TABLE 8.—*Pathologic Conditions in Mothers*

Condition	Premature Infants
None	440
Cesarean section (previous)	1
Cardiac disease	12
External injury	54
Deformity (pelvic)	13
Dystocia (nonosseous)	1
Hypertension (essential)	8
Infections	30
Membranes (premature, rupture of)	24
Placentae abruptio	21
Placenta praevia	38
Polyhydromnios	13
Toxemia	89
Tumors	5
Surgery (nonobstetric)	4
Syphilis	25
Uterine bleeding	10
Uterine inertia	1
Other	4
Unknown	2
Total	795

The employment of morphine, codeine, scopolamine and the various barbituric acid compounds during labor occurred in eighty-six out of the 795 cases. In forty-one instances the amounts given were beyond reason, and the infants of mothers thus drugged were born with the effect of the medication. When only moderate doses were given, the effect on the child was nevertheless that of diminishing his chances for living. Especially was this true when his vitality had been already reduced by other causes, such as atelectasis.

The danger from analgesics is greater in premature than in full-term infants. The peril to the child is especially grave when, as was observed, large doses of analgesics are given to abolish the pains of labor and then, in the same cases, solution of posterior pituitary in effective doses is given to incite or increase them.

OXYTOCICS

The use of solution of posterior pituitary, quinine, ergot and other oxytocics for inducing labor is considered a questionable procedure by many of the obstetricians who have a low mortality.

There were seventeen deaths of premature infants in cases in which solution of posterior pituitary was given before or during the second stage of labor in such circumstances and quantities as to be open to serious question.

ANESTHETICS

Of the deliveries of the 795 premature infants who died, 52.7 per cent were handled without the use of an anesthetic. Of the anesthetics, ether was by far the most frequently used.

No anesthetic is free from all objections when considered from the standpoint of its influence on the respiratory center of the fetus. Though the use of an anesthetic is usually unavoidable in operative or instrumental delivery, when the amount used is reduced to the minimum the figures show that the infant has the best chance of surviving. During the second stage of labor, when the head has reached the perineum, it is generally agreed that the advantages of using ether outweigh the danger.

PATHOLOGIC CONDITIONS IN MOTHERS

Of 793 premature infants who died and for whom information was available, 44.5 per cent were subjected to some recorded pathologic condition in the mothers, as is shown by table 8. The most frequently observed conditions, in order, are toxemia, external injury, placenta praevia, infections and syphilis.

MORTALITY DURING FIRST TWENTY-FOUR HOURS

Of the 795 premature babies who died, eighty-five, or 10.7 per cent, died within an hour of birth, and 554, or 69.7 per cent, died within twenty-four hours. Of the full-term babies who died, sixty-one, or 10.8 per cent, died within an hour of birth, and 213, or 37.6 per cent, died within twenty-four hours. In other words, the mortality for the premature infants during the first day is almost double that of full-term infants.

AUTOPSIES

Table 9 shows that autopsies were done on 251 of the 795 premature infants and that 207 of these agreed with the statement of death appearing on the certificate. For 450 infants, prematurity was the only assigned cause of death on the death certificate. An autopsy was done on eighty-four of these, and for thirty-two children some condition other than underdevelopment was involved. In the remaining 345 prematurely born infants, the conditions listed in the table appeared on the death certificates. The most frequent causes of death associated with prematurity were atelectasis (176), cerebral hemorrhage (fifty-eight), malformation (forty) and bronchopneumonia (twenty-eight).

TABLE 9.—*Stated Cause of Death of Premature Infants in Relation to Autopsy*

Cause Stated on Death Certificate	Number of Deaths			Agreement of Autopsy with Stated Cause of Death	
	Without Autopsy	With Autopsy	Total	Agreed	Disagreed
Tuberculosis of respiratory system	0	1	1	0	1
Syphilis, congenital	3	1	4	1	0
Disease of the thymus gland	0	1	1	1	0
Hemorrhagic purpura	0	1	1	1	0
Bronchopneumonia	9	18	27	17	1
Diarrhea and enteritis	0	1	1	0	1
Hernia	0	1	1	1	0
Intestinal obstruction	2	0	2	0	0
Other disease of intestine	0	1	1	1	0
Congenital hydrocephalus	2	2	4	2	0
Spina bifida and meningocele	3	1	4	1	0
Congenital malformation of heart	11	6	17	6	0
Other congenital malformations	9	6	15	6	0
Premature birth	366	84	450	52	32
Intracranial injury	2	1	3	0	1
Other injury	2	0	2	0	0
Cerebral hemorrhage	16	42	58	41	1
Atelectasis	99	77	176	72	5
Icterus	5	0	5	0	0
Sclerema	2	2	4	1	1
Asphyxia	11	3	14	3	0
Other diseases of early infancy	2	1	3	1	0
Infanticide	0	1	1	0	1
Total	544	251	795	207	44

In a large percentage of the cases, the death certificates were not written until the postmortem exami-

nation had been made. This, of course, eliminates the possibility of discrepancies between the cause of death given on the certificate and that found on autopsy. Only a few of the records showed whether or not the autopsy confirmed the clinical diagnosis.

MALFORMATIONS

Malformations were present in sixty-one, or 7.7 per cent, of the premature infants who died. With few exceptions these malformations were serious enough to be the cause, or contributing cause, of death. Cardiac and cephalic malformations were the most frequent.

In fifty-seven, or 7.2 per cent, of the premature infants, the physical defect was so severe as to be incompatible with life. Many infants were affected with multiple malformations.

MORTALITY RATE

In 1935, 1,862 infants out of 49,425 live births were classified as being prematurely born. This is a rate of 37.7 premature births per thousand live births. Of the premature infants, 795, or 42.7 per cent, died during the first month of life. Of the 795 prematurely born babies who died, 450 were stated to have died from prematurity alone.

Of the 450 infants, autopsies were performed on eighty-four. In thirty-two of these the cause of death was found to be other than that on the death certificate. Twenty-seven of these thirty-two deaths were directly due to atelectasis, one to syphilis, two to bronchopneumonia, one to a birth injury, and one to a congenital malformation and not to prematurity, as had been stated on the death certificate. In view of this fact it is fair to assume that, in many of the remaining infants on whom no autopsy was performed, some condition other than prematurity caused the death.

There is a great deal still to be done if the deaths from prematurity are to be further reduced. Endeavors to save the infants who die during the first forty-eight hours, especially, must be exerted during the prenatal period and toward the control of factors operative at the time of delivery.

Table 10.—*Weight at Birth*

Weight in Pounds	Premature Infants
½ to under 1	5
1 to under 1½	42
1½ to under 2	79
2 to under 2½	103
2½ to under 3	100
3 to under 3½	113
3½ to under 4	68
4 to under 4½	60
4½ to under 5	59
5 to under 5½	47
5½ to under 6	24
6 to under 6½	24
6½ to under 7	5
7 to under 7½	8
7½ to under 8	3
8 to under 8½	2
Unknown	53
Total	795

Further analysis of the figures obtained through the investigation of the premature deaths revealed some interesting facts.

BIRTH WEIGHT; PLACE OF BIRTH

The birth weight of 742 premature infants who died was obtained. Of this number, as shown in table 10, 629, or 84.8 per cent, weighed less than 5 pounds. Of the prematurely born infants who died, 62.4 per cent weighed from 1½ to 4 pounds.

Of the 795 premature infants of whom we had knowledge and who died under 1 month of age, 74.8 per cent were born in Chicago hospitals, 24.8 per cent were born at home and 0.4 per cent were born outside the city, en route to a hospital, or else the place of birth was not known.

Table 11.—*Presence of Certain Pathologic Conditions at Birth*

Condition	Number of Times Condition Occurred in 795 Premature Infants
Atelectasis	239
Asphyxia	41
Hemorrhage	60
Icterus	11
Sclerema	3
Congenital syphilis	10
Pathologic condition discovered	472
Unknown	1
Total conditions	837

Table 12.—*Methods of Resuscitation Used*

Method	Number of Times Method Was Used on 251 Premature Infants
Catheter (tracheal)	131
Artificial respiration	77
Oxygen	72
Oxygen and carbon dioxide	37
Stimulants	65
Hot and cold water	58
Mouth to mouth respiration	11
Mechanical stimulation	9
Respirator	5
Total times methods were used	465

PATHOLOGIC CONDITIONS AT BIRTH

Three hundred and twenty-two, or 40.5 per cent, of the premature infants who died had clinically one or more of the conditions listed in table 11. Atelectasis, hemorrhage of some type, and asphyxia were the conditions most frequently present.

RESUSCITATION

Information as to whether or not resuscitation measures were used was obtained for 794 premature infants who died, and resuscitation was used for 251, or 31.6 per cent.

A catheter (tracheal) for aspirating the pharynx or larynx was used in 52.2 per cent of the premature infants who died and who required resuscitation, as shown by table 12.

The various methods of resuscitation were used 465 times in 251 babies. Methods which, in general, are not accepted as being satisfactory, such as slapping, swinging, spraying with ether, artificial respiration, alternate hot and cold baths and similar violent efforts to induce breathing, were used 149 times, or in 32 per cent of the total. The administration of drugs such as epinephrine or other cardiac and so-called respiratory stimulants was noted in sixty-five cases.

The most frequent difficulty encountered in the child at the moment of birth was a lack of adequate respiratory function due to atelectasis. Physiologically, the lung is in an atelectatic state in the new-born. There

is a variety of abnormal conditions which may tend to cause the atelectasis to continue. In premature infants, an undeveloped respiratory center and weak respiratory muscles may delay or prevent the establishment of breathing. Cerebral compression or hemorrhage may have the same effect. Asphyxia, from this or other causes, such as compression of the cord, detachment of the placenta or aspiration of fluids, is an urgent condition to be met promptly.

The first movement in the respiratory act is, of necessity, inspiration. Unless the mucus or fluid in the nose, pharynx, larynx or trachea is withdrawn by the use of the catheter (tracheal), with continued breathing this mucus may be drawn into the lungs and may result in asphyxia. Therefore the immediate and proper use of the catheter (tracheal) should be the first step in the attempt at resuscitation in all instances.

PLACE OF DEATH

Five hundred and seventy-six premature infants, or 72.5 per cent, died in the same hospital in which they were born and had never left the institution; 105, or 13.2 per cent, were born at home and died at home; eighty-seven, or 10.9 per cent, were born at home but died in a hospital.

TABLE 13.—*Place of Birth and Death*

Place of Birth and Death	Premature Infants
Died in hospital of birth	576
Died in hospital of birth (was at home between birth and death)	1
Died in another hospital than that of birth	12
Died in another hospital than that of birth (was at home between birth and death)	1
Born and died at home	105
Born at home and died in hospital	87
Born at hospital and died at home	5
Born at home and died en route to hospital	5
Born en route to hospital and died at hospital	3
Total	795

TABLE 14.—*Immediate Care Given*

Type of Care	Number of Times Type of Care Was Given to 795 Premature Infants
Incubator	565
Oxygen	275
Oxygen and carbon dioxide	114
External heat, such as warm blankets	188
Stimulants	174
Routine care	82
Efforts to establish respiration	72
Other	35
None	9
Unknown	6
Total times types of care were given	1,520

TYPE OF CARE

Of the 795 premature infants who died, 565, or 71.1 per cent, were placed in an incubator at once, as is shown by table 14. Of the 230 who did not receive immediate incubator care, forty-six received it within a few days. In addition to incubator care, oxygen, external heat and stimulants were the most frequently used forms of treatment for premature babies.

The mortality rates from various institutions show the advantage of caring for premature infants in specially equipped nurseries under the supervision of an expert personnel. Resuscitation measures were instantly operative, adequate heat and breast milk provided, and the infant disturbed as little as possible, at those institutions where the mortality rates were low.

An attempt was made to evaluate the care which the babies received, as is shown in tables 15 and 16. The care of sixty-four premature babies who died was judged as inadequate by the investigator. The main

TABLE 15.—*Treatment Received by Mother and Child*

	Premature Infants
Adequate care given	731
Hospital care inadequate	32
Outpatient service inadequate	4
Medical care inadequate	23
Midwife care inadequate	5
Total	795

TABLE 16.—*Reasons Why Care Was Considered Inadequate*

Reason	Hospital	Doctor	Outpatient Service	Midwife	Total
No heated bed	8	12	3	0	23
No breast milk	6	1	0	0	7
Questionable obstetrics	8	0	0	0	8
No oxygen	1	0	0	0	1
Removed from incubator too soon	1	0	0	0	1
Discharged in poor condition	1	0	0	0	1
Birth injury	1	0	0	0	1
Inadequate equipment	1	0	0	0	1
General inadequate care	5	10	1	5	21
Total	32	23	4	5	64

reasons for this judgment were lack of incubator care, lack of breast milk, the use of questionable obstetrics, and general inadequate care and attention.

SUMMARY

A review of the mortality of premature infants under 30 days of age in Chicago for 1935 shows that the adoption, for city-wide use, of measures shown by Hess to be effective in hospital practice has brought progress in saving the lives of these babies. Most of the deaths of premature infants occurred during the first twenty-four hours (69.7 per cent). This is almost double the percentage of full-term infants who died during the first twenty-four hours (37.6).

Lack of proper antepartum care is a large factor in the production of high mortality rates in premature infants.

Wassermann tests on pregnant women are not made with nearly the frequency with which they should be carried out.

The improper use of analgesics, anesthetics and oxytocics may account for some of the mortality from prematurity. Pathologic conditions in the mother, such as toxemia, placenta praevia, infections, such as pneumonia and syphilis, are factors in almost half of the deaths of premature babies. The most frequent causes of death associated with prematurity were atelectasis, cerebral hemorrhage, malformation and bronchopneumonia.

Methods of resuscitation in general not accepted as being satisfactory were employed 149 times. The use of proper resuscitation methods will help reduce the mortality of premature babies.

CONCLUSION

The problem for the future consists, especially, in more extensively controlling the causes of death at the time of the birth of premature babies, as well as those conditions operative during the antenatal period. In other words, there is need for extension of antepartum, obstetric and postnatal care.

The proper antepartum and obstetric care for all pregnant women should bring about a marked reduction in the number of deaths not only among premature babies but among all infants who die under 30 days of age, as well as the number of stillbirths. The Board of Health will continue to extend its efforts along these lines during the coming years.

To find ways and means for further reducing infant mortality, data concerning the exact causes for these deaths must be at hand. Such data can best be obtained by a careful personal investigation of each death by a trained medical investigator. If such investigations were conducted by boards of health in many communities and the figures compared, much informative material would be made available.

THE DIFFERENTIAL DIAGNOSIS OF SALICYLATE POISONING AND DIABETIC ACIDOSIS

REPORT OF A CASE

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When Langmead[1] in 1906 reported eight cases of salicylate poisoning in children, two of which were fatal, he called attention to the similarity of these cases to diabetic acidosis. Likewise, he referred to the term "salicyl-dyspnea," which Quincke had used in 1882, when he too had apparently noted the resemblance. Since that time this observation has been abundantly confirmed. It would appear, however, that the syndrome produced by overdosage of salicylate has not been sufficiently stressed to make it common knowledge. Standard textbooks and systems of medicine, as well as key treatises on the subject of diabetes, do not mention it. Two of the textbooks on pediatrics which we examined described it briefly under "poisons." Our object in restating this problem under the foregoing title is again to call attention to this similarity.

REPORT OF CASE

History.—H. U., a boy, aged 18 months, was sent to the Children's Hospital on the evening of Jan. 31, 1936, by Dr. B. M. Bukowski, with a tentative diagnosis of diabetic coma. It appeared that restlessness, irritability and "heavy breathing" had been observed three days previously. On the following day these symptoms were aggravated and vomiting had become persistent. On entrance the child had not retained food or fluid for thirty-six hours. It had become stuporous about six hours before admission. The mother said that the child had been exceedingly thirsty all during this illness and prior to the acute illness had had a voracious appetite.

Bedside Examination.—The child was well nourished and well developed. A high grade hyperpnea (Kussmaul breathing) was present. The skin and tongue showed evidence of considerable dehydration. The child cried when disturbed but soon fell asleep. The pupils were dilated and the eyeballs were noticeably soft. There were no abnormal neurologic signs or evidence of meningeal irritation. The temperature was 99.2 F. (rectal), pulse rate 140 per minute, and respiration rate 40. The urine reduced Benedict's solution (3+) and showed a strongly positive ferric chloride reaction.

Course.—Shortly after admission the child was given 5 units of insulin and 400 cc. of 5 per cent dextrose in physiologic solution of sodium chloride subcutaneously. An hour later the insulin was repeated. The blood sugar, taken before the administration of insulin, was then reported to be 87 mg. per hundred cubic centimeters. Two hours later the child's eyes were "starey," and 10 Gm. of dextrose in a 50 per cent solution was administered intravenously. The probability of diabetes seemed to be eliminated. An acidosis from some unknown cause, a lesion of the central nervous system, or some type of poisoning was then considered. The carbon dioxide capacity of the blood plasma was found to be but slightly reduced (50 volumes per cent). This seemed to rule out acidosis as the cause of the hyperpnea. The spinal fluid (20 cc. removed without difficulty, under pressure, which, unfortunately, was not measured) was clear, contained no increase in protein or cells, and reduced Benedict's solution in fifteen seconds.

The following day the child was less drowsy, but still restless, and cried frequently. He had taken milk and water by mouth, and vomiting had ceased. The respirations remained at 40 per minute but were noticeably less deep. The urine did not reduce Benedict's solution, but the Gerhardt test showed the characteristic violet color of the salicylate reaction. The spinal fluid, which had been removed the day before, was also found to show the same reaction to an extreme degree. The sodium nitroprusside test on both the urine and the spinal fluid was negative, as was the stomach washing obtained the previous night.

On the second day the restlessness and hyperpnea had entirely disappeared. The child was discharged from the hospital three days after admission, clinically well.

Subsequent investigation revealed that the parents had found several "anacin"[2] tablets in a place that would have been accessible to the patient. Also it was determined that the child, on the day before the illness, had taken a sip of well diluted oil of wintergreen.

Additional Laboratory Examination.—The admission specimen of urine showed considerable albumin (2+), but none was present in the specimen obtained before discharge. The blood count, which was taken on admission, showed some unexplained hypochromic anemia. The hemoglobin was 52 per cent (Sahli) and the red blood cells numbered 5,900,000. The white blood cells numbered 17,700 per cubic millimeter, 67 per cent of which were polymorphonuclears. The blood smear showed considerable anisocytosis and hypochromia.

COMMENT

It is well known that diabetes in children may not be suspected until symptoms of acidosis appear. One who is confronted with a clinical state such as we have described may be led to the error, as we were, of treating such a patient for diabetic acidosis, unless facilities for doing blood sugar and carbon dioxide determinations are promptly available. It is well known that the urine of patients who are taking salicylates reduces copper solution, often quite completely. Also the laboratory technician who is unacquainted with the Bergundy red reaction of acetoacetic acid and the violet color produced by salicylates in performing the Gerhardt test may unwittingly report the presence of diacetic acid. Starvation under such circumstances may produce ketonuria (sodium nitroprusside test). When such an emergency exists there is not time to differentiate the reducing substance of salicylate and dextrose in the urine by the fermentation method.

The permeability of the meninges to salicylate has been known since 1878, when Livon and Bernard[3]

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1. Langmead, F.: Salicylate Poisoning in Children, Lancet **1**: 1822 (June 30) 1906.

2. Anacin tablets are reported to contain acetylsalicylic acid, quinine sulfate, caffeine and acetophenetidin.

3. Livon, Charles, and Bernard, J., cited by Katzenelbogen, S.: The Cerebrospinal Fluid and Its Relation to the Blood, Baltimore, Johns Hopkins Press, 1935, p. 302.

demonstrated it in dogs by the ferric chloride reaction. Both Hitch [4] and Dyke [5] found salicylate in the spinal fluid in their cases by this method. The pressure of the spinal fluid has been measured in but few instances. In Madisson's [6] case it was 190 mm. of water, in Dyke's [5] 180 mm., and in Mikulowski's [7] 150 mm. The examination of the spinal fluid for salicylates at the bedside might be decidedly helpful in making a differential diagnosis.

Dyspnea is an important symptom of salicylate poisoning, and it is largely because of this hyperpnea that acidosis of diabetic or renal origin is often suspected, unless there is a clear history of the ingestion of salicylate. Sylla [8] followed the pulmonary ventilation in his patient with acetylsalicylic acid poisoning after the second day. It fell from 37 liters per minute to 11 liters on the third day and was normal, 5 liters per minute, on the seventh. The basal metabolic rate was plus 33 per cent on the third day and normal on the seventh.

The cause of this dyspnea has been widely discussed. Naturally, because of the Kussmaul type of breathing, it was thought to be caused by an acidosis, particularly since all investigators agree that there is some reduction of the carbon dioxide capacity of the blood plasma in salicylate poisoning. Many observers have noted the disparity between the degree of hyperpnea and the alkali reserve. Veil and Graubner,[9] Gebert [10] and Odin [11] found with this an increased p_H of the urine. They suggest that salicylate has an irritative action on the respiratory center which produces hyperventilation. This, in turn, causes decreased carbon dioxide tension of the alveolar air and blood, and a reduction of the fixed alkali in the blood by the excretion of an alkaline urine. Also it is their contention that for this reason the administration of alkali is contraindicated in the treatment of salicylate poisoning, in contrast to the view of others. Johnson [12] found that four of eight of his experimental cats which had received the equivalent of a full therapeutic dose of sodium salicylate had significant decreases in the alkali reserve and that in these there was an increase in blood lactate. He believes that these changes are reconcilable with a fixed acid acidosis.

The literature on salicylate poisoning has been reviewed by other authors prior to 1928. Space here does not permit us to consider them comprehensively. A comparative list of the changes in diabetic coma and salicylate poisoning based on our review is presented in table form. During this period reports of thirty-two severe cases were found. In fifteen the salicylate was administered therapeutically, in eleven either by accident, self administration or error, and in four deliberately for the purpose of self destruction. One followed the use of salicylate injection into varicose veins. Death occurred in one half of the cases. Twenty-five of the cases occurred outside the United States.

A considerable number of cases have come to necropsy and while the pathologic changes are not sufficiently characteristic to permit the pathologist to make an unequivocal diagnosis of salicylate poisoning in the absence of a history or the demonstration of large amounts of salicylate in the body fluids, nevertheless certain changes warrant such a suspicion. Madisson [6] found an engorgement of the blood vessels of most of the organs with small hemorrhages in both human and experimental (rabbits) salicylate poisoning; also cloudy swelling of the heart, liver and kidneys, which in some instances had progressed to fatty degeneration. Incidentally, he believed that his experiments showed that the administration of dextrose along with the salicylate lessened the intensity of the reaction and delayed death.

Comparative Conditions Found in Diabetic Acidosis and Salicylate Poisoning *

	Diabetic Acidosis	Salicylate Poisoning
Symptoms and Signs:		
Onset	Slow	Rather slow
Epigastric	May be present	May be present
Vomiting	Usually present	Usually present
Hyperpnea	Present	Present
Dehydration	Present	Present
Thirst	Present	Present
Coma	May be present	May be present
Hypotension	May be present	May be present
Laboratory Examinations:		
Blood		
Sugar	High	Usually normal
CO_2 capacity	Low	Slightly decreased
Leukocytes	May be increased	May be increased
Polymorphonuclears	May be increased	May be increased
Urine		
Albumin	Present	Present
Casts	Present	Present
Red blood cells	May be present	May be present
Copper reduction (dextrose)	True	False
Ferric chloride	Burgundy red	Violet
Sodium nitroprusside	Present	May be present
Spinal fluid		
Pressure	Probably normal	May be increased
Ferric chloride	May be positive	Violet (false)

* The following are rarely seen in diabetic acidosis but frequently in salicylate poisoning: tinnitus, twitching, convulsions, deafness, dimness of vision, sweating, hallucinations, disorientation, delirium and urticaria.

CONCLUSIONS

1. Salicylate poisoning appears to be a clear clinical entity, but one that may be confused with diabetic or renal acidosis.

2. Salicylate poisoning should be considered when one is eliminating the various causes of coma, especially if hyperpnea is present.

3. The finding of the violet color reaction in the spinal fluid with ferric chloride may be a useful differential diagnostic procedure; it would have been in our case.

4. Physicians should be acquainted with the syndrome produced by the overdosage of salicylate, especially since the drug is so widely used, in its various forms, as a therapeutic agent, a household remedy, and a method of suicide.

5. The dyspnea of salicylate poisoning appears to be more reasonably explained on the basis of an irritative action on the respiratory center than on acidosis.

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Clinical Notes, Suggestions and New Instruments

FAILURE OF SODIUM CHLORIDE RESTRICTION TO PRECIPITATE CRISIS IN A CASE OF ADDISON'S DISEASE

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Many of the symptoms of adrenal insufficiency are those commonly associated with dehydration and depletion of the bases of the animal body, chiefly sodium. In cases of Addison's disease the administration of an adequate amount of sodium tends to produce a more nearly normal state of hydration and corrects the sodium deficit. Harrop [1] first suggested that sodium chloride restriction precipitated crises in patients suffering from Addison's disease and could be used in this manner to establish a diagnosis in questionable cases. The following case is presented as evidence that such a test is not reliable in all instances:

REPORT OF CASE

History.—Mrs. E. W., aged 39, admitted to the medical service of Dr. H. A. Reimann at the University Hospitals in July 1934, gave the following history: She had not been strong since she suffered from "milk leg" following the birth of her last living child in 1920. In 1928, during the ninth month of gestation, a severe painless vaginal hemorrhage developed following which she delivered a dead full-term fetus. Thereafter she experienced a greater sense of fatigue and a reduced ability to work. In December 1933 the patient noticed puffiness of the eyelids and general body surface, nausea, vomiting and pallor, and experienced an attack of syncope with loss of consciousness lasting about eight hours. She remained in bed at home for three or four weeks and in January 1934 was transferred to a hospital, where she had a second attack of syncope and unconsciousness, which lasted for several hours and was said to have been rather dramatically relieved by the intravenous administration of a dextrose solution. The patient was later able to do some housework but experienced spells of dizziness and marked weakness. A few weeks prior to admission thyroid extract was prescribed, and following this puffiness of the eyelids and subcutaneous tissue disappeared, but other symptoms were not changed.

Blood and Urinary Dextrose Values

Blood Sugar, Mg. per Hundred Cubic Centimeters	Urinary Sugar
Fasting 99	0
After ½ hr. 285	++
After 1 hr. 240	+++
After 2 hrs. 198	+
After 2½ hrs. 186	+

The patient was well developed, with evidence of recent loss of subcutaneous tissue. There was questionable pigmentation in the skin folds of the palms of the hands and soles of the feet and around the umbilicus, but no abnormal pigmentation was noted in the mucosa of the mouth, pharynx or eye fundi. No significant finding was observed when the head, neck, chest, abdomen, genitalia and extremities were examined. The heart tones were somewhat faint but otherwise normal. The blood pressure on admission was 88 mm. systolic and 60 mm. diastolic.

Laboratory Examinations.—Several urinalyses were negative. The hemoglobin averaged 75 per cent (Sahli); there were 3,100,000 erythrocytes and 5,000 leukocytes per cubic millimeter of blood, 48 per cent of which were polymorphonuclear granulocytes, 51 per cent lymphocytes and 1 per cent eosinophils. The nonprotein nitrogen of the blood measured 26.2 mg. per hundred cubic centimeters. Blood Wassermann tests were negative. The blood and urinary dextrose values following the intravenous injection of 40 Gm. of dextrose are given in the accompanying table. Five basal metabolic rates varied from minus 20 per cent to minus 30 per cent. The carbon dioxide combining power of the blood was 64 volumes per cent. The blood plasma contained 600 mg. per hundred cubic centimeters of chlorides. The stools were normal.

Course.—The patient was at first thought to have Addison's disease. A Mantoux test with 0.1 mg. old tuberculin was strongly positive. X-ray plates of the lungs, heart, kidneys and adrenals failed to show any evidence of abnormality. The patient was given 3 grains (0.2 Gm.) of desiccated thyroid daily for about one month without definite improvement. This medication was discontinued and she was given 9 Gm. of sodium chloride daily in addition to the general hospital diet. After one week the patient stated that she felt better than she had in a long time. She was then given a diet low in sodium chloride (approximately 1.5 Gm. daily) from September 4 to September 25. This twenty-one day period of sodium chloride restriction did not cause recurrence of symptoms. The chloride and nonprotein nitrogen content of the blood were not altered. The blood pressure varied but little, averaging 90 mm. systolic and 65 mm. diastolic.

Hypothyroidism was then considered as the most probable diagnosis, and the patient was discharged with instructions to follow a high caloric general diet and take 1 grain (0.06 Gm.) of desiccated thyroid (Armour's) three times daily. She was readmitted one week later, October 1, because of headache, persistent vomiting and great fatigue. The physical changes were essentially the same as those previously described, except that the patient was slightly dehydrated. Laboratory examination on the second admission showed that the hemoglobin had dropped from 75 per cent to 55 per cent and the erythrocytes from 3,500,000 to 2,700,000 per cubic millimeter. The nonprotein nitrogen content of the blood increased from 26.2 to 33.3 mg. per hundred cubic centimeters. The blood pressure varied from 76 to 88 mm. systolic and 52 to 60 mm. diastolic. The patient was given dextrose solution and physiologic solution of sodium chloride intravenously with great improvement in her general condition. She appeared to improve gradually but died very suddenly and unexpectedly with gasping respiration and obvious air hunger.

A complete autopsy was performed. The only abnormal conditions found were bilateral hydrothorax of approximately 100 cc. of clear straw-colored fluid. Both adrenals were so atrophied that they could be identified only on microscopic examination, which showed an extreme atrophy of the cells of the cortices with condensation of the supporting connective tissue stroma. The medulla was represented by a few widely distributed small groups of characteristic cells, a considerable number of which showed pyknotic nuclei with lipoid vacuoles in the cytoplasm. There was no evidence of inflammatory reaction. The thyroid gland was small. The cut surface was pale and the microscopic sections showed a decrease in colloid and acini. The cells lining the acini were flat, and there was considerable lymphocytic infiltration of the stroma. The ovaries were pale, small and hard. On microscopic examination no graafian follicles were found in the several sections examined. A few corpora albicantia were present.

The diagnosis was Addison's disease, bilateral cortical atrophy; hypothyroidism, chronic thyroiditis; bilateral hydrothorax, and atrophic ovaries.

COMMENT

Clinically this case was considered an example of hypothyroidism rather than Addison's disease because of the edema or myxedema of the subcutaneous tissues, the low basal metabolic rates, the absence of definite pigmentation, and the failure of sodium chloride restriction to precipitate an addisonian crisis. However, the postmortem examination revealed a marked atrophy of both adrenals in addition to a chronic thyroiditis. The adrenal insufficiency was in all probability the cause of the patient's sudden death. Bilateral adrenal cortical atrophy is not uncommonly the cause of Addison's disease, but in our experience the absence of characteristic pigmentation in bilateral cortical atrophy is rare. The failure of sodium chloride restriction to precipitate a crisis in this case may be explained by the presence of an adequate amount of adrenal hormone at that time to prevent excessive sodium excretion and the associated dehydration. Nishimoto,[2] Schittenhelm and Eisler [3] and

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others have shown that there is a decreased sodium chloride excretion in hypothyroidism and that, when the hypothyroid state is corrected by feeding of thyroid or injection of thyroxine, the excretion of sodium chloride increases. This patient received thyroid extract before the period of sodium chloride restriction but not sufficient to increase the basal metabolic rate above minus 20 per cent; consequently the sodium chloride excretion was probably low. During the period prior to salt restriction the patient received 9 Gm. of sodium chloride daily, which may have resulted in sodium chloride retention, and because of the hypothyroidism the subsequent twenty-one day period of restriction was too short to deplete the patient's supply of sodium chloride. Wilder[4] has been able to induce crises in Addison's disease by high potassium feeding. This suggests that potassium may exert an influence opposite or antagonistic to that of sodium in Addison's disease similar to that observed in certain juvenile diabetic patients and in patients with tissue edema. It is possible that the adrenal cortical hormone is an important factor in the control of the sodium-potassium ratio in the body.

MIGRATING GRÄFENBERG CONTRACEPTION RING

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It appears that the use of a flexible metal ring in the uterus as a contraceptive is rather widespread, and according to an advertisement in a medical journal the manufacturers advise that it is both efficient and safe. This apparatus is variously called Von Graffe ring, Gomco contraception ring and Gräfenberg ring. A foreign body remaining in the uterus would be expected to give some unfortunate results.

The case which I report is one of these. I have found very little in the medical literature on this subject, but I have collected the reports of three other cases which would further suggest the danger of the use of such an apparatus.

Jan. 14, 1936, Mrs. X consulted me. Her last period began Oct. 5, 1935. She told me that a contraceptive ring had been inserted in the uterus in November 1934, and she brought with her a roentgenogram taken eight months before which showed the shadow of a ring apparently near the center of the pelvis. The uterus was about the size of a three months pregnancy. She told me that the ring had been inserted by a prominent gynecologist in another city. As I was not familiar with this particular instrument, I wrote to him for information. He courteously reported that he had placed a Von Graffe ring (apparently a Gräfenberg ring) in November 1934. He also said that these rings had been used in Germany in many thousand cases and that pregnancy could be expected in only about 1 per cent of the cases, but that if it did occur an abortion would be required, as the child would be deformed.

Obviously if the uterus was to be emptied it was necessary that the ring also be removed to prevent complications. Another picture was made, which showed the ring in about the same location as before. As the patient was now about four months pregnant, hysterotomy seemed to meet the indications best. The contents of the uterus were evacuated but no ring could be found. Grasping the cervix between the thumb and the fingers, I felt the ring in the wall of the cervix. On further investigation the edge of the ring was seen under the bladder flap of peritoneum. It was divided and removed. A part of the ring was embedded in the wall of the cervix. If I had found this first I would not have opened the uterus.

Cregan[1] reports a conception with the Gräfenberg ring in place. This resulted in spontaneous abortion associated with streptococcic septicemia incidental to middle ear infection.

Green-Armytage[2] reports an infected abortion of nine weeks gestation. The Gräfenberg ring was found embedded in the chorion.

Murphy[3] describes a case of three months pregnancy complicated by a migratory Gräfenberg ring. The chief complaint was pelvic pain, particularly on walking, and a sick feeling. Roentgen examination showed the ring apparently to one side of the uterus. When the abdomen was opened, the ring was visible showing through the peritoneum of the broad ligament. It was divided and removed and pregnancy was allowed to proceed.

Including the three cases found in the literature, four cases of pregnancy are here reported in which the Gräfenberg ring failed to prevent conception. In two of these the pregnancy ended in septic abortion, and in two the ring migrated out of the uterus, requiring abdominal operation.

It is possible that other such results have followed. This information may serve to curb some enthusiasm as to its efficiency and safety.

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Special Clinical Article

THYROTOXICOSIS

CLINICAL LECTURE AT KANSAS CITY SESSION

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May I preface my address by telling you how greatly I appreciate the honor and privilege of attending these Kansas City meetings of your Association. The subject on which I am speaking was suggested by those responsible for my name being on the program, but it would be ungracious of me to hold them responsible for what I say. And yet I do not think they need fear even if I did, because I have nothing of an iconoclastic nature to say: what intelligent person has, in a field where exact knowledge is so meager? The temptation to exceed the facts, though great, must be resisted. I have no new facts to offer you, but if I can clear the air a little by a reminder of what we know, and what we only presume, that may be a contribution not altogether worthless and—or so I think—not untimely.

Take this word "thyrotoxicosis," for example. I am uncertain that it serves any very useful purpose. Anyway, unless it is taken in the most generic sense to connote all the toxic states in which there is a thyroid factor concerned—whether the thyroid is the sinner or is more sinned against than sinning, and whether the gland is disturbed only in a functional sense or is the seat of gross organic disease—only in this way should physicians tolerate its introduction into the nomenclature. The question arises whether, if this principle is acknowledged, the word can really be justified. But it has arrived, and the best thing we can do is to watch it, and to see that it does not mesmerize us into the belief that its arrival has taught us a new fact or series of facts.

It would be an interesting digression to consider how the premature introduction of new words and phrases can obstruct, rather than help, the progress of medicine. But I must refrain, at least this morning. But I do not think it amiss to remind you that Thomas Hobbes, the father of English philosophy, warned us that "words are the counters of wise men but the monies of fools." In no study is it more imperative than in medicine that we should heed his warning.

The great objection to the word "thyrotoxicosis" is that it postulates a basic fact which has never been established. There is no indisputable evidence that exophthalmic goiter owes its evolution in the main, or

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even in a lesser degree, to the circulation of disordered thyroid secretion. The same may be said of the symptoms variously classified under the terms "toxic goiter," "toxic adenoma." *Pace* certain textbooks whose authors or editors strive prematurely to substitute for noncommittal names of diseases terms having precise pathologic connotation, the postulate that exophthalmic goiter is an expression of mere hyperthyroidism is even less authenticated, whether on clinical or on experimental grounds.

Until we find some method of measuring the amount of thyroid secretion poured out into the blood stream—and at present we possess no such method—we shall not solve the main problem facing us in this matter.

There are facts which suggest that the thyroid hyperplasia which is the characteristic change in the fully developed picture of exophthalmic goiter is not the primary, but a secondary, phenomenon. Certainly there is no quantitative relation between the degree of thyroid enlargement and the degree or the duration of the symptoms. The latter may be very severe and active in association with very little, or even with no, thyroid enlargement; but again the symptoms may be mild and tending to quiescence in association with considerable hyperplasia. Nor is there any reason to believe that we have yet established any qualitative relation: by which I mean that there is no evidence that the secretion from gland tissue that is merely hyperplastic, diffusely fibrotic or the seat of adenomas differs from that which is elaborated by a healthy gland. Nor, again (to complete the series of morbid anatomic changes in the thyroid which appear to have associations with metabolic increase and/or with sympathomimetic manifestations), is there evidence that the cells of an adenoma themselves yield a pathologic secretion.

DEVELOPMENT OF THE DISEASE

In considering the pathogenesis of exophthalmic goiter the use of the term "thyrotoxicosis," as already noted, lands us at the very center of the problem. What is the *causa causans*? It remains hidden. As in so many other instances, nature has revealed the results of a disease process but jealously guards the secret of the exact mechanism by which these results are evolved. We see the picture on the screen quite plainly, but the projector is hidden. That some poison is at work seems an irresistible conclusion. Especially suggestive in this connection are the crises, often pyrexial, which are so alarming a feature and prognostically so serious. They surely give us a dramatic presentation of an intense toxemia. There is no reason for believing them to be of microbic origin. Are they metabolic? Or are they due to the flooding of the circulation by some uncontrolled physiologic hormone? What part in the pathogenesis of the disease is taken by iodine metabolism?

The removal of a large part of the thyroid gland in a chronic and established case of the disease, resulting, as it often does, in such a marked subsidence of the symptoms, suggests that the source of manufacture of the poison resides in the gland. But the actual proof of this hypothesis eludes us, despite painstaking research. Moreover, we must exercise great care in the argument at this point. Thyroidectomy may interrupt a vicious circle in the patient's interest and so do good in quite another fashion than by getting rid of the primary cause of the trouble. There are analogies bearing on this possibility: splenectomy in "splenic anemia" and the same operation in "acholuric jaundice." It is feasible that the missing clue may be found extrinsic to the thyroid. Indeed, such a possibility is coming to be regarded as probable. But it may be found to be extrinsic to the involuntary nervous system also, though it certainly appears as if the latter organ bulks largely in, at any rate, the earlier stages of the disease. Biochemistry linked with histology may find the solution, for here is a field of discovery of enormous potential value, as we appreciate when we realize the unveiling by these methods of the reticuloendothelial system, and its bearing on the mechanism of addisonian anemia.

Of the state of the thyroid gland itself, quite apart from the moot question of the exact relation which it bears to the syndrome in general, I do not propose to deal in detail. The fact that so many different pathologic conditions may be present in association with the syndrome I am considering has induced some workers to discard the thyroid altogether as being even indirectly concerned in a causative sense. Yet the conclusion that the gland is intimately bound up with the pathogenesis of exophthalmic goiter seems, on clinical grounds, indisputable. But the factor of metabolic increase has by some been discarded also. Indeed, certain of the recent analyses of this baffling syndrome remind me not a little of the devastating and uneconomical criticism of the cynical friend who gradually reduced the fishmonger's caption "Fresh Fish Sold Here" to no caption at all by the elimination of unnecessary words. There was no need for the word "fresh," he said, for surely he wouldn't sell stale fish; no need for the word "here," since his shop wasn't anywhere else; no need for the word "sold," because he didn't give the fish away; and no need for the word "fish," for it could be smelled two streets off. The exophthalmos may be only a symptom, the thyroid gland may be secondarily and not primarily affected, the involuntary nervous system may be stimulated from without and not from within, and the basal metabolic rate may be low rather than high. But the subtleties of too fine an analysis confuse, rather than clarify, our ideas, seeing that the basic data are as yet so meager. The stubborn fact remains: Exophthalmic goiter exists for all to see: the syndrome repeats itself with increasing persistence and demands our attention. If we take our stand here we are on the sure ground of clinical medicine, and in my further remarks this is what I propose to do.

ETIOLOGIC FACTORS, SYMPTOMS AND COURSE

The known etiologic factors, the symptoms and the course of the disease call for a few remarks. That there is a diathesis in exophthalmic goiter is generally accepted. But whether the flaw resides in the involuntary nervous system or in the psyche, or in the endocrine balance, or in some other as yet unrecognized tissue or function, or in more than one of these, we do not know. Of the predisposing causes we know a little: sex, certain collateral familial conditions, and an "autonomic imbalance." Of exciting causes there are the sex epochs, there are psychic traumas, and there is focal sepsis. Or is it merely fashion which leads us to speak of focal sepsis? For myself, I have been very disappointed in the search for focal sepsis in exophthalmic goiter, however thorough this search may have been. Associated endocrine defects are sometimes advanced as a contributory cause, but the evidence is entirely unconvincing. Is this mere fashion again? Or is the suggestion due to a desire to give support to the hypothesis that exophthalmic goiter is itself an endocrine disorder? Of this, however, there is, as already remarked, no good evidence.

To the original three symptoms observed by Graves —the exophthalmos, the tachycardia and the goiter— Charcot added tremor. These constitute the cardinal features. Many others have been noted from time to time, among them various ocular changes, dermatoses, glycosuria, neuroses, psychoses, and manifestations of sympathetic instability such as flushing, sweating and diarrhea. Loss of weight is very common, though, as in diabetes, which is one of the familial associations, the patient may be fat rather than lean. Lesser degrees of the disease are recognizable, and, given favorable conditions, these quite frequently abort.

An attempt has been made by some to segregate cases which present some of, or even all, the symptoms of exophthalmic goiter but which show no increase in the basal metabolic rate—a striking feature in the great majority of the established cases. It is proposed to use the term "autonomic imbalance" for these cases in which the basal metabolic rate is not raised. How far this segregation is justified, and what proportion of these cases pass on to what these observers would call true exophthalmic goiter, we do not yet know. Granted that the basal metabolic rate, as a measure of metabolic activity, is of fundamental importance, too much weight must not be attached to this criterion. The basal metabolic rate is raised in some conditions which are not, and do not tend to become, exophthalmic goiter. On the other hand, some cases of exophthalmic goiter, if we use the clinical standard, occur with a normal, or even lowered, basal metabolic rate.

As regards the course of the disease, in the majority of cases the onset and the early stages are insidious. In a few cases the origin seems to be acute or even abrupt; but here, as in some other diseases, such as diabetes and disseminate sclerosis, it is usually possible to trace a latent stage of the disease before the exacerbation arrives. When fully developed, and even when the patient is very ill indeed, the disease may subside completely and with no recognizable residues—a very striking experience. Or the established picture may remain long enough to render organic residues permanent, even though quiescence arrives. But, unfortunately, in a large proportion of the established cases the fire, even if it dies down somewhat, continues to smolder. The patient becomes a chronic invalid, with at first functional and intermitting, and, later, organic and permanent heart damage. In still other cases the fire, instead of dying out or dying down, blazes, and the patient succumbs to an intense and overwhelming toxemia, the so-called thyroid crisis.

DIAGNOSIS

The diagnosis of exophthalmic goiter may be very easy or it may be very difficult. The difficulty lies in a recognition of the early and the incomplete pictures. It is these which call for clinical acumen, and it is these which reward the observer so abundantly if he discovers them. The secret, if secret there be, lies in bearing the disease in mind when one is faced with an obscure case having nervous or metabolic features. Training in the observation of facies and behavior is of paramount importance. Whenever these deviate from the average we should not rest until we have a positive, not merely a negative, explanation. The formula "I failed to elicit any signs of organic disease" and the supposed comfort to be derived from it have hidden many an early case of exophthalmic goiter and will continue to do so for years to come. In these days we tend to fall upon a patient too early after our first contact with him, so anxious are we to pass him through the mill of our routine examination of his various organs. Exophthalmic goiter in its early stages is a disease of the patient and not of her organs. So let us give ourselves time "to stand and stare," as the poet has it. We shall then have a chance of observing if the patient is staring, and why. Be it observed that the "stare" is not merely, or perhaps not at all, a matter of exophthalmos: there are the enlarged palpebral fissures, the infrequency of blinking, the dilated pupils, and the immobile forehead. But there is also the manner of entering the room, the hot hand, quickly given and quickly withdrawn, the restlessness, the rapidity of movement, the lack of poise, the excess of gesture, the record short time spent in undressing and in dressing, the moist skin, and the flush on the neck and chest.

Unexplained loss of weight, especially in men who are past middle age, should always raise the question of exophthalmic goiter. So also should certain changes in the patient's conduct, whether noticed by others or— and this sometimes happens in highly conscientious and self-critical women—by the patient herself: unwonted lack of control, irascibility, excessive show of the emotions, and the quick expenditure of an unaccustomed store of nervous energy without apparent fatigue.

TREATMENT

In considering the treatment of exophthalmic goiter the physician must concern himself with prevention whenever the diathesis is recognized: a thankless task, for, as a philosopher has truly observed, it is not to be expected that human beings will accept advice when they will not accept warning. And the fact that the potential victim of the disease is more often a woman than a man lessens the chance of much being accomplished in this direction.

The picture of the slighter manifestations of the sympathomimetic part of the syndrome—to use Dale and Barger's term—too often escapes detection, as already remarked. Yet if these "larval" types, or "formes frustes," are noted, the physician has a better chance than if committal symptoms have declared themselves. Even so, his efforts seldom carry conviction. To some his suggestions savor too much of washing in Jordan; to others they constitute an intolerable interference with that round of excitement which entails so much psychologic and nervous stress for many young people. The doctor is often accused of wanting to make his patient a cabbage. Yet for those who accept his control and cooperate with him there is undoubtedly a good promise of stabilization. The chief difficulty, next to the temperament of the patient, lies in securing the necessary relief for those who are forced by their economic position to earn their daily bread by jobs which make excessive demands on their nervous system. Whenever possible—and this applies to all classes —the question of the patient's occupation should be carefully considered. Though it is not necessary that the patient should become a cabbage in order to attain physiologic salvation, it may help him very materially to grow cabbages, or something equally useful. The more rustic the type of routine, the better; it is no mere shibboleth that leads the doctor to preach the doctrine of "the simple life" to these patients.

If the symptoms persist in spite of controlling the patient's routine of life, and in all cases in which the full syndrome has developed, the degree of physiologic and psychic rest should be absolute and should be continued for at least three months. Bed is the only place where such rest can be guaranteed. A good deal of time can be wasted over compromises for the adoption

of which most patients seek to win their doctor's sanction. To yield or not to yield is the test of the latter's experience of the disease. To secure rest of the mind a heart-to-heart talk of an entirely confidential nature is imperative, and it is best to assume the existence of some emotional hold-up, since this is so frequently present. The patient should be given confidence in her ability to get well, though the need for patience should not be concealed. It is better to discount anything by way of a royal road from the first.

If focal sepsis is present, this should be eliminated as far as possible. Efforts at specific therapy based on the hypothesis of the thyroid dysfunction, whether by the use of serum from thyroidectomized animals or from animals inoculated with excess of thyroid secretion, have failed in the hands of most observers. There is no specific drug, though there are drugs that help: iodine certainly, and in all cases in which the thyroid is involved (but surely there is room for more research into the best methods of exploiting this drug to its best advantage); belladonna (introduced by Trousseau) in some; the bromides in others. Of quinine hydrobromide, which has had a vogue, I cannot myself give any good account. Digitalis appears to be unhelpful apart from cardiac dilatation.

There remains the important question of partial thyroidectomy, a form of treatment which has so far justified itself of late years that debate on the main issue seems unnecessary. In what cases, therefore, and especially how, it behoves us very carefully to consider. Suffice it to say that in my own experience the operation should be undertaken whenever the disease remains active after six months of carefully supervised medical treatment, and also in cases which relapse in spite of the patient's routine of life being adequately controlled. I agree, too, that the operation is indicated in all cases in which auricular fibrillation has developed, and that it is indicated still more absolutely when signs of congestive heart failure are present, whether the cardiac rhythm be so affected or not. To delay when any of these three criteria have arrived is to lose valuable time and to lessen the benefit which may otherwise be expected. I do not propose to consider the technic. But no doubt we should all desire that the procedure be as bloodless as possible, that every patient be allowed the benefit of her parathyroids, that the recurrent laryngeal nerves be left intact, and that as few cases of myxedema be created as may be.

As for the question of an immediate mortality, the difference between a patient being only chronically ill one day and very dead the next is so tragic and so striking—an experience that was not very uncommon until a few years ago—that it is a relief to know that this difference can be eliminated by careful preparation for the operation, by skilled technic in its performance, and by a form of anesthesia which is competently chosen and as competently administered.

It is not without significance that the most striking results of thyroidectomy are seen in those cases which are advanced and in which the vicious circle is complete, always provided the load of the procedure is not more than the patient can carry. One conclusion that may be derived from this fact, and the general results of the procedure, is that if you want to do the operation of subtotal thyroidectomy in exophthalmic goiter a disservice you will do it too early.

We must consider whether the known benefits seen after total ablation of the thyroid in some cases of congestive heart failure throw light on the rationale of subtotal thyroidectomy in exophthalmic goiter. We must not omit to remember, in this connection, the fact that surgeons tend to remove more and more of the gland, whether in one or two stages, and that some of them attribute to this change in stratagem and in the tactics involved the better results seen today as compared with those seen formerly. That I discuss the question of surgical treatment even as much as I do is because I believe that, if we can properly assess the criteria and the responses connected with this important procedure, we shall make a valuable contribution to the elucidation of what is at present a great mystery—the pathogenesis of exophthalmic goiter.

I understand that those who have studied most fully the results of total thyroidectomy in congestive heart failure have quite recently come to the conclusion that, despite the striking immediate effect on the decompensation and on associated anginoid symptoms, the procedure is, in the majority of cases, scarcely worth the patient's while. But the adventure may be said at least to have taught us something, and this is, after all, a not uncommon result in surgical adventures—medicine gains more than the patient. Just as it takes all sorts of people to make up a world, so it takes all sorts of experimental measures, those that are retained as serviceable, as well as those that are discarded, ultimately to make up a system of effective therapy in obscure disease processes.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

KEPHRINE HYDROCHLORIDE.—Methylaminoacetocatechol hydrochloride.—α-keto-β-methylamine-*ortho-para* dihydroxyethyl-benzene hydrochloride.—$(OH)_2\ C_6H_3\ COCH_2\ NH\ (CH_3)\ HCl$. Kephrine hydrochloride is the monohydrochloride of a base resembling epinephrine (*laevo*-methylaminoethanolcatechol) but differs in that kephrine possesses a ketone group in place of the secondary alcohol group of epinephrine.

Actions and Uses.—Kephrine hydrochloride acts by constriction of the blood vessels. In comparison with epinephrine its action is less powerful, but the effects are more lasting. Kephrine hydrochloride is used only locally and will, as a rule, arrest capillary bleeding within two or three minutes. The hemostatic effects usually persist from one to two hours. As there is no appreciable absorption of kephrine hydrochloride into the blood stream, it does not have any noticeable effect on the blood pressure. Kephrine hydrochloride is not destroyed by blood alkali.

Dosage.—Kephrine hydrochloride is marketed in the form of powder and suppositories; bandages and gauze impregnated with kephrine hydrochloride are also supplied. The selection of a suitable dosage form is governed by the anatomic or pathologic characteristics of the individual case.

Manufactured by Pharmazeutische Industrie, A. G., Vienna, Austria (Campbell Products, Inc., New York, distributor). No U. S. patent or trademark.

Kephrine Hydrochloride Powder: Kephrine hydrochloride 5 parts and tricalcium phosphate 95 parts.

Kephrine Hydrochloride Rectal Suppositories: Kephrine hydrochloride 3 parts, extract of belladonna 1 part, in 96 parts of a suppository base.

Kephrine Hydrochloride Bandage: Bandages, 5 meters long and 1, 3, 5 and 8 centimeters wide, impregnated with kephrine hydrochloride, 1 Gm. per 3,000 square centimeters.

Kephrine Hydrochloride Gauze: Gauze impregnated with kephrine hydrochloride, 1 Gm. per 3,000 square centimeters.

Kephrine hydrochloride occurs as a white, odorless powder; freely soluble in water, soluble in alcohol; insoluble in ether. Its aqueous solution is neutral to litmus. Kephrine hydrochloride "melts" with decomposition at 238 to 240 C.

Dissolve about 0.5 Gm. of kephrine hydrochloride in 25 cc. of water, add a very slight excess of ammonia water; collect the

resultant methylaminoacetocatechol on a filter paper, wash and dry at 100 C.: a yellow crystalline powder results which on heating deepens in color at 200 C. and "melts" with decomposition at 230 C.; the filtrate from the foregoing gives a white precipitate with silver nitrate solution, insoluble in boiling nitric acid but soluble in an excess of ammonia water.

Dissolve about 0.02 Gm. of kephrine hydrochloride in 20 cc. of water; separate portions of 2 cc. yield a canary-yellow color with 1 cc. of ammonium molybdate solution, which is not discharged on subsequent addition of 0.3 cc. of dekanormal sodium hydroxide solution *(distinction from epinephrine)*; a bluish purple color with 0.2 cc. of a 1:100 sodium nitroprusside solution, 1 cc. of sodium hydroxide solution and 0.2 cc. of glacial acetic acid *(distinction from salts of ephedrine, neosynephrine and tyramine)*. Boil about 0.01 Gm. of kephrine hydrochloride with 2 cc. of alcoholic potassium hydroxide solution and 3 drops of chloroform: no odor of phenylisocyanide is evolved *(primary amines)*. To about 0.1 Gm. of kephrine hydrochloride in 5 cc. of water, add 1 cc. diluted hydrochloric acid and 1 cc. of barium chloride solution: no turbidity develops *(sulfate)*.

Dry about 0.5 Gm. of kephrine hydrochloride, accurately weighed, to constant weight at 100 C.: the loss does not exceed 7 per cent. Incinerate about 0.5 Gm. of kephrine hydrochloride, accurately weighed: the residue is not more than 0.1 per cent. Transfer about 0.25 Gm. of kephrine hydrochloride, accurately weighed, to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the method described in Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, art. 22: the amount of nitrogen is not less than 6.35 per cent nor more than 6.5 per cent when calculated to the dried substance. Transfer about 0.3 Gm. of kephrine hydrochloride, accurately weighed, to a suitable Erlenmeyer flask, add 100 cc. of water, previously boiled to remove carbon dioxide and titrate with tenth-normal sodium hydroxide solution using phenolphthalein as an indicator: the amount of hydrogen chloride found corresponds to not less than 16.5 per cent nor more than 17 per cent, calculated to the dried substance. Transfer about 0.3 Gm. of kephrine hydrochloride, accurately weighed, to a suitable glass stoppered Erlenmeyer flask, dissolve in about 20 cc. of water, neutralize with a diluted ammonium hydroxide solution, adding a very slight excess; place the flask and contents in a refrigerator at 5 C. and allow to stand for eighteen hours. Collect the precipitate on a tared Gooch crucible, wash with cold water followed by cold alcohol and ether, and dry to constant weight at 100 C.: the percentage of methylaminoacetocatechol obtained corresponds to not less than 83 per cent, nor more than 86 per cent, calculated to the dried substance.

KINNEY'S COD LIVER OIL CONCENTRATE LIQUID.—A concentrate of the unsaponifiable fraction of cod liver oil dissolved in sufficient cod liver oil to give the desired potency to the marketed product. It has a vitamin A potency of not less than 60,000 units (U. S. P.) per gram and a vitamin D potency of not less than 8,500 units (U. S. P.) per gram.

Actions and Uses.—It possesses the therapeutic properties attributed to the vitamins present in cod liver oil.

Dosage.—For the Liquid: Infants, from six to eight drops daily; children, two to four drops three times daily; adults, four drops three times daily. The liquid is marketed with a dropper designed to supply ⅔ minim (0.041 cc.) in each two drops. For the Capsules: Children, one capsule daily; adults, one to two capsules daily.

Manufactured by the Health Products Corporation, Newark, N. J. (Scientific Sugars Co., Indianapolis, distributor) U. S. patent 1,984,858.

Kinney's Cod Liver Oil Concentrate Capsules, 3 minims.—Each capsule contains Kinney's Cod Liver Oil Concentrate Liquid, 3 minims, and has a vitamin A potency of not less than 10,000 units (U. S. P.) and a vitamin D potency of not less than 1,450 units (U. S. P.).

Kinney's Cod Liver Oil Concentrate Liquid, Vials, 5 cc.—Each ⅔ minim (0.038 Gm.) has a vitamin A potency of not less than 2,280 units (U. S. P.) and a vitamin D potency of not less than 320 units (U. S. P.).

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1935, p. 408).

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

Diphtheria Toxin for Schick Test, Diluted Ready for Use-Mulford.—A diphtheria toxin diluted with a sodium chloride-borax-boric acid buffer solution containing 0.1 per cent of Witte's peptone, so that 0.1 cc. contains a Schick test dose (1/50 minimum lethal dose). The minimum lethal dose is determined by injection of graduated doses into a series of 250 Gm. guinea-pigs. Marketed in 1 cc. vials containing sufficient material for ten tests; in 5 cc. vials containing sufficient material for fifty tests and in 10 cc. vials containing sufficient material for one hundred tests. For the control test a diluted diphtheria toxin inactivated by heat is supplied in 5 cc. vials representing sufficient material for fifty control tests.

INSULIN (See New and Nonofficial Remedies, 1935, p. 227).

Insulin-Mulford (See New and Nonofficial Remedies, 1935, p. 231).

The following dosage form has been accepted:

Insulin-Mulford, 100 units, 10 cc.: Each cubic centimeter contains 100 units.

ALLERGENIC EXTRACTS-LEDERLE (See New and Nonofficial Remedies, 1935, p. 28; THE JOURNAL, July 11, 1936, p. 130).

The following additional product has been accepted:

Alfalfa Allergenic Extract Lederle.[8]

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. FRANKLIN C. BING, Secretary.

LIBBY'S BRAND CALIFORNIA ORANGE JUICE

Manufacturer.—Libby, McNeill & Libby, Chicago.

Description.—Canned California orange juice retaining in high degree the original vitamin C content.

Manufacture.—Tree-ripened Valencia oranges are sorted, scrubbed with water, halved and the juice and pulp mechanically burred out. The juice is vacuumized, filled into cans which are closed under vacuum, processed in agitated cookers and immediately cooled. The entire process requires only a few minutes.

Analysis (submitted by manufacturer).—

	per cent
Moisture	87.4
Total solids	12.6
Ash	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	1.1
Total sugars as invert sugar	9.7
Crude fiber	trace
Carbohydrates other than crude fiber (by difference)	10.0
Total acidity as citric acid	1.0
*p*H	3.7
Sodium (Na)	0.05
Potassium (K)	0.18
Calcium (Ca)	0.01
Magnesium (Mg)	0.01
Iron (Fe)	0.0008
Phosphorus (P)	0.02
Sulfur (S)	0.01
Chlorine (Cl)	0.004

Calories.—0.5 per gram; 14 per ounce.

Vitamins.—Chemical titration shows an average cevitamic acid (ascorbic acid) content of 0.6 mg. per cubic centimeter, 17.4 mg. per fluidounce, as compared to 0.7 mg. per cubic centimeter for fresh juice, showing practically no reduction of vitamin C in canning.

Claims of Manufacturer.—This orange juice is practically equivalent to fresh juice in nutritive value. For all dietary and table uses.

ARIZ-SWEET BRAND GRAPEFRUIT JUICE (SUGAR ADDED)

Manufacturer.—Ariz-Sweet Grapefruit Growers, Ltd., Peoria, Ariz.

Description.—Canned Arizona grapefruit juice, with added sucrose, retaining in high degree the original vitamin C content.

Manufacture.—Same as Ariz-Sweet Brand Grapefruit Juice, (THE JOURNAL, April 25, 1936, p. 1474), except that a small amount of sugar is added.

Analysis (submitted by manufacturer).—

	per cent
Moisture	86.5
Total solids	13.5
Ash	0.4
Fat (ether extract)	trace
Protein (N × 6.25)	0.6
Crude fiber	0.1
Reducing sugars as invert sugar	7.8
Sucrose	2.7
Carbohydrates other than crude fiber (by difference)	11.2
Acidity as citric acid	1.2

Calories.—0.5 per gram; 14 per ounce.

Vitamins.—Same as Ariz-Sweet Brand Grapefruit Juice (THE JOURNAL, April 25, 1936, p. 1474).

Claims of Manufacturer.—Intended for all dietary and table uses of grapefruit juices. Practically equivalent to fresh juice in vitamin C.

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SATURDAY, JULY 25, 1936

A CLINICAL STUDY OF ABORTION

A steady increase in admissions of abortions in some hospitals in England has occurred during the last ten years. Indeed, about 2 per cent of the total admissions in the general hospitals of the London County Council are cases of abortion. The deaths attributed to abortion in England and Wales in 1933 amounted to 24.2 per cent of the total deaths from puerperal sepsis.

In his recent review of 1,000 cases of abortion, Parish[1] found that 203 of the women had no living children and 173 were pregnant for the first time; 207 of these women had one living child and only 136 had six or more children. Admittedly, 485 of the women had induced abortion by one means or another, varying from the employment of an abortionist to the use of slippery elm bark. Most of the deaths that occurred in the entire series were in this group. In another group, of 246 cases, abortion was the result of various diseases or conditions, the most common, in order, being uterine displacement, accidents, pulmonary diseases, pelvic diseases, lacerated cervix and renal diseases. There was no intervention in this group, and there were no deaths. Of the 1,000 cases under review, infection was present in 48.3 per cent on admission to the hospital.

For the group of 151 cases of threatened abortion, the plan of treatment was to place the patients completely at rest, giving 0.016 Gm. (one-fourth grain) of morphine if pains were present, and to defer pelvic examination if the diagnosis was clear. With this treatment 57 per cent of the patients with threatened abortion were discharged still pregnant. For the 148 cases of inevitable abortion, no treatment other than ergot was given unless there was a special indication. If the abortion was not progressing, an enema was given followed by three injections of 0.5 cc. of solution of posterior pituitary every two hours. When this treatment failed to complete the abortion, the uterus was evacuated. In 72.9 per cent of the cases of inevitable abortion, completion occurred spontaneously or with the assistance of drugs. Of 481 cases of incomplete abortion, infection was present on admission in 52 per cent. Expectant treatment was followed until the fever subsided, unless hemorrhage necessitated more active measures. Five days was found to be a satisfactory period to allow between the subsidence of fever and evacuation of the uterus. When the temperature, however, failed to return to normal in a week, the retained products were removed from the uterus with as little trauma as possible. If it was necessary to dilate, great care was taken not to split the cervix, to avoid any pathway for the entry of micro-organisms into the parametrium. If the uterus could not then be evacuated digitally, a blunt curet was used only to explore the uterus. When drawn gently over the uterine surface, if an obstruction was located, a slightly firmer pressure was made to remove it, but curettage was not performed. The uterus was flushed with a mild antiseptic solution; when retained products ceased to come away with the flushings, the curet was abandoned.

Four hundred and sixty-one cases required operative intervention to evacuate the uterus completely, and 7.2 per cent of these later showed some rise in temperature, while in only 1.7 per cent of the spontaneously completed abortions was there any exacerbation of infection. Active infection was present in more than half of the cases of complete abortion on admission to the hospital; if the temperature did not fall with bed rest in such cases, treatment by means of intrauterine injections of glycerin was undertaken. All but one of the eighteen patients who died was infected at the time of admission; in the one fatal case, septicemia became apparent six days after curettage for subinvolution.

The mortality rate for the entire series of 1,000 abortions was 1.8 per cent. Mortality from abortion is due chiefly to sepsis following illegal interference with pregnancy; it is therefore preventable.

1. Parish, T. N.: A Thousand Cases of Abortion, J. Obst. & Gynaec. Brit. Emp. **42**: 1107 (Dec.) 1935.

SOME FAILURES OF SURGICAL TREATMENT IN GASTRODUODENAL ULCERS

The operation of partial gastric resection has won for itself a place of major importance in the treatment of gastroduodenal ulcers. In the removal of the ulcer-bearing area, enthusiasts on behalf of resection thought they had found a happy solution of the therapeutic problem of peptic ulcer. Careful statistical studies of a later period were able to bear out this contention only in part. The occurrence in a not too negligible percentage of cases of grave postoperative complications, recurrences and failure to cure the patient of his disease or to relieve him of his symptoms suggests that interference with normal physiologic relationships of the motor and secretory functions of the stomach and duodenum are not always in themselves innocuous.

Operative measures for the cure of gastroduodenal ulcer aim at the reduction of the gastric secretion and the removal of motor or mechanical hindrance to the

emptying of the stomach contents. Gastro-enterostomy introduces a new factor into the evacuating mechanism of the stomach, that of hydrostatic pressure. The normal peristaltic evacuating force becomes predominant in a gastro-enterostomized stomach toward the completion of the emptying process. The greater portion of the stomach contents is still conducted along the pyloroduodenal route except where cicatricial stenosis or a special operative procedure prevents its passage. The motility of the stomach after a gastro-enterostomy is completely dominated by the factor of hydrostatic pressure. The emptying will depend principally on the size of the anastomotic stoma. There frequently results a "dumping" stomach. The development of a sort of a new pyloric ring and bulb with active retention of stomach contents takes place not uncommonly after the first operation of Billroth. With the introduction of roentgenologic study of the relief of the gastric mucosa and its direct inspection by the gastroscope, it was established that most operative procedures on the stomach, and in particular gastro-enterostomy, are followed by a diffuse inflammation of the mucosa. The gastric rugae in roentgenologic studies of the mucosal relief appear enlarged, particularly near the stoma, giving rise at times to a difficulty in differentiating this condition from carcinoma. The gastroscope reveals swelling and redness of the mucosa. The inflammation may develop into atrophic gastritis, with consequent lowering of the acid secretion and cure of the ulcer. It may, however, persist as an acid gastritis with high acid secretion, in which case it is likely to lead to a recurrence of the original ulcer or to formation of a peptic marginal jejunal ulcer. The finely balanced relationship between the gastric motility and the gastric secretion is no longer operative after a surgical intervention. While the stomach rapidly empties itself, the secretion of the gastric juice continues and now acts on the empty stomach. The condition is analogous to the experiment in which high gastric acidity in starved animals is maintained by histamine injections or by sham feedings with the aid of an esophageal fistula. The combination leads in both human beings and experimental animals to ulcer formation.

Even partial gastric resection fails to lower the gastric secretion to the degree heretofore believed. The glands of the pyloric region secrete an alkaline juice, while those of the corpus portion secrete hydrochloric acid and the ferments. The regulation of the acidity, however, is localized in the pyloric zone. Here humoral influences arise which are conveyed by the blood stream to the glands of the corpus. Thus it is believed that the generally favorable results of the first and second operations of Billroth and their modifications are to be accounted for not so much by the removal of the ulcer-bearing area as by the loss of the acid-stimulating area. The effect is further promoted by the diminution in size of that portion of the stomach which secretes hydrochloric acid and the ferments. The simple experiment of histamine injection demonstrates that the stomach after a partial resection is still capable of secreting acid juice.

Disturbances in motility and secretion attendant on operative intervention may lead to complications consisting of vomiting and acute dilatation of the stomach. Unless rapidly relieved, hypochloremic coma and death will supervene. Late complications may arise as the result of motor disturbances, such as the already mentioned "dumping" stomach, stenosis of the new stoma, compression of the efferent loop of jejunum by the distended afferent loop and adhesions causing strangulation. Probably the most frequent complication is inflammation of the mucosa of the stomach, the duodenum and the first coil of jejunum. It has been most frequently observed following gastro-enterostomy, less often after the second Billroth operation and least often after the first. Among the more serious and disappointing late complications, recurrence of the ulcer and formation of a marginal jejunal ulcer must be mentioned. Because of its greater tendency to bleed, to perforate into the free peritoneal cavity, to grow callous and to resist treatment, jejunal ulcer has come to be considered a more formidable condition than the original disease. Penetration of a jejunal ulcer into the transverse colon with the formation of gastro-jejunocolic fistula is manifested by true fecal vomiting and diarrheal stools with undigested contents. The prognosis is utterly bad unless relieved by the difficult operation of partial resection of the stomach, the involved segment of the jejunum and of the transverse colon and the reconstruction of the continuity of the gastro-intestinal tract. Digestive disturbances develop from such causes as artificially produced achylia, loss of the influence of the duodenal secretions, and the too rapid passage of the gastric contents into the intestinal canal. Loss of the duodenal reflex may lead to gallbladder stasis and cholelithiasis. The effect of the removal of a considerable portion of the stomach on the organism as a whole manifests itself at times by the development of secondary anemias of hypochromic type and rarely by hyperchromic anemia of the pernicious type.

Constitution undoubtedly plays an important part in the tendency to recurrence of ulcer. According to von Bergmann, persons with "vegetative stigmas" are particularly vulnerable. The milder types of digestive complications can be successfully treated by rest, diet and internal therapy. The more stubborn cases, particularly those following a gastro-enterostomy, are best treated by a partial resection. One, however, must not forget that there are cases, fortunately few, in which a second and even a third resection is followed by the recurrence of symptoms and new ulcer formation.

In explanation of these "surgically incurable" cases, Kalk [1] advances the theory of an anatomic peculiarity;

1. Kalk, Heinz: Das Erfolglos operierte Geschwür des Magens und Zwölffingerdarmes, Chirurg **8**, May 15, 1936.

namely, an unusually long zone of pyloric glands, such as exists in moles and guinea-pigs. But most observers blame the constitution and the ulcer "diathesis."

Consideration of postoperative complications is in no sense a condemnation of the surgical treatment, which has come to be recognized by the internist as well as by the surgeon as a valuable and in many cases the more successful method of treating gastroduodenal ulcer. It should, however, make the indication for operative intervention, as well as the choice of the operation, a matter of careful individual study in each case.

Current Comment

LEAD IN HUMAN BONES

Much has been written [1] of the ways by which lead may enter the body, its relatively transitory occupation of soft tissue areas, and its final storage in the skeleton, to which, after only a few days, a large part of the absorbed unexcreted lead gradually migrates. The lace-like trabecular structure has been credited as the special bony tissue which holds lead and may release it under the influence of certain biochemical conditions induced within the living organism through medication or by certain pathologic states. The mean daily intake of lead derived from ordinary food may reach 0.25 mg., an amount, however, no greater than that readily excreted by the body; hence, after a "substantial constant concentration of lead" in the tissues has been reached, a further accumulation is normally avoided.[2] Apparently it may take many years to arrive at such a steady state between intake and output. Human fetuses have been reported [2] to contain small but definite amounts of this metal, and there are indications [3] of a progressive increase in the lead content of human bones from infancy to old age without histories of specific exposure to lead. A similar chronological increase in the lead content of teeth apparently also occurs under seemingly normal conditions.[4] Reports of many investigators indicate a wide but uneven distribution of lead in soft tissues. Likewise in bony structures Tompsett [5] recently furnished confirmatory and extended evidence that, without specific exposure to lead, different bones contained unlike quantities. He found that the shafts of the femur and tibia housed larger amounts of this metal than either ribs or vertebrae. The probability of an extensive but unequal distribution of lead in tissues, especially skeletal, and the so-called normal level varying with age, suggests the complexity of the problem of interpreting the presence in human bodies of lead occurring in even relatively large amounts. Tompsett has suggested that, in cases of suspected lead poisoning, different bones should be examined. For significant interpretation of even such extended data, however, one would need to compare such results with values obtained for the same bones belonging to the same age groups obtained from bodies of persons who had suffered no known exposure to lead during their lifetime.

1. Aub, J. C.: Lead Poisoning, Medicine **4**: 1 (Feb.-May) 1925; The Biochemical Behavior of Lead in the Body, J. A. M. A. **104**: 87 (Jan. 12) 1935.
2. Kehoe, R. A.; Thamann, Frederick, and Cholak, Jacob: Normal Absorption and Excretion of Lead, J. A. M. A. **104**: 90 (Jan. 12) 1935. Tompsett, S. L., and Anderson, A. B.: The Lead Content of Human Tissues and Excreta, Biochem. J. **29**: 1851, 1935.
3. Barth, E.: Investigation of the Lead Content of Human Bones, Virchows Arch. f. path. Anat. **281**: 146, 1931.
4. Pfrieme, F.: Normal and Pathologic Lead Content of Teeth in Man and Animals, Arch. f. Hyg. **111**: 232 (Jan.) 1934.
5. Tompsett, S. L.: The Distribution of Lead in Human Bones, Biochem. J. **30**: 345, 1936.

DETECTION OF OCCULT BLOOD IN THE STOOL

Small hemorrhages in the gastro-intestinal tract may escape recognition by the usual tests for blood in the stool but can be detected with a high degree of exactitude by the spectroscope. The studies of Häcker,[1] Haurowitz,[2] Boas [3] and other coprohematologists show that ingested blood is eliminated chiefly as hematin, which is an iron-containing nonprotein decomposition product of hemoglobin. The usual elimination curve, according to Häcker, reveals a rapid excretion of hematin within the first twenty-four hours. The peak of elimination of kopratin (reduced hemin) is reached in from two to three days, while that of the porphyrin bodies is delayed to the third or fourth day. Attention is directed to one of these porphyrin bodies, kopratoporphyrin or deuteroporphyrin, for its presence has been found by some of these investigators to be helpful in the diagnosis of minute hemorrhage originating from carcinomatous or other ulcerative processes in the gastro-intestinal tract when the stool specimens are negative for hematin. Routine tests for kopratoporphyrin were obtained in three out of five cases of gastric carcinoma studied by Häcker, while the test was positive in only one of his forty-one cases of gastric ulcer. The term porphyrin literally means a purplish red pigment (Greek: porphyra, purple). Chemically, it is iron-free hemin. The porphyrins are basic constituents of pigments such as chlorophyll, bile pigments, muscle pigments and cytochrome as well as hemoglobin and are important not alone in the respiration of animals and plants but also in the synthesis of sugar from carbon dioxide and water. As illustrated by the synthetic studies of H. Fischer,[4] the porphyrins are substituted products derived from porphin. Porphin, the fundamental nucleus common to hemoglobin, cholorophyll and other derivatives, consists of four linked pyrrole nuclei. Koproporphyrin occurs normally in the feces and urine, and uroporphyrin is found in the urine in porphyrinuria. All the porphyrins display four absorption bands in alkaline solution, but the spectrographic appearance is distinct for each porphyrin. The complex methods employed in the isolation of kopratoporphyrin discourage extensive use of the kopratoporphyrin test. An immunologic method for the detection of human blood in the stool would be ideal, but the facts that hematin is not endowed with antigenic properties and that globin, which may perhaps give rise to a specific antibody response, is decomposed in the intestinal tract precludes such a test for the present at least.

1. Häcker, W.: Ueber den Nachweis okkulter Blutungen des Magen-Darmkanals mit besonderer Berücksichtigung des Auftretens von Kopratoporphyrin und Hämoglobin, Arch. f. Verdauungskr. **58**: 268 (Dec.) 1935.
2. Haurowitz, F.: Konstitution und biologische Eigenschaften des Blutfarbstoffes und seiner Derivate, Klin. Wchnschr. **13**: 321 (March 3) 1934.
3. Boas, I.: Das okkulte Haemoglobin in den Faezes, sein Nachweis und sein klinische Bedeutung, Deutsche med. Wchnschr. **57**: 1271 (July 24) 1931.
4. Fischer, H.: Oppenheimer's Handbuch der Biochemic, 1924, A, III, pp. 72-104.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Nurse Anesthetist Lawful When Under Medical Supervision.—The Supreme Court of California has sustained the judgment of the court below that refused to enjoin a nurse employed by a hospital from administering general anesthetics in connection with surgical operations. The surgeon, said the court, has the power, and therefore the duty, to direct the nurse and her actions during the operation. Nurses, during the preparation for and progress of an operation, are neither diagnosing nor prescribing within the meaning of the medical practice act; it is the legally established rule that they are but carrying out the orders of the physicians, to whose authority they are subject.

CONNECTICUT

Results of New Marriage Law.—Since January 1 it has been compulsory for couples desiring a license to marry to have a blood test for syphilis. Up to July 6, according to the state health department, about one blood test out of every 100 made at the state department of health laboratories had been reported distinctly positive for syphilis.

Personal.—Drs. John T. Winters and Francis L. Lundborg were appointed police surgeons of West Hartford, June 1, succeeding Dr. Frederick E. Kunkel, resigned.——Dr. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, was awarded an honorary degree of doctor of science by Dartmouth College, Hanover, N. H., June 14.

Society News.—Dr. William Dameshek, Boston, read a paper before the Bridgeport Medical Association in Bridgeport, June 2, on "Recent Advances in Hematology."——The Connecticut Association of Public Health and Clinical Laboratories was recently addressed by Drs. Alfred L. Burgdorf, Hartford, who discussed the state marriage license law, and Elliott S. A. Robinson, Boston, "Immunologic Application of Placental Extracts."——The Connecticut Society for Mental Hygiene held its twenty-eighth annual dinner meeting in Greenwich, May 22. Speakers included Dr. Charles C. Burlingame, Hartford, whose paper was entitled "When Clifford Beers Began, and Now"; Dr. Clements C. Fry, New Haven, "The Anatomy of Personality," and Charles-Edward A. Winslow, Dr.P.H., New Haven, who was toastmaster. Officers include Dr. Winslow, president, and Dr. Burlingame, vice president.

ILLINOIS

Poliomyelitis and Typhoid.—Eight new cases of poliomyelitis were reported for the week ended July 14, making the total throughout the state for this week the highest recorded up to this date in any one week since 1932, newspapers reported. It was stated that three cases were reported from Cook County, two from Winnebago, and one each from De Witt, Kane and Macon counties. Typhoid, with twelve new cases during the same week, reached a new weekly high for the year.

Health at Peoria.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended July 11, indicate that the highest mortality rate (27.5) appears for Peoria and that the rate for the group of cities as a whole is 11.9. The mortality rate for Peoria for the corresponding period last year was 11.4 and for the group of cities, 10.7. The annual rate for eighty-six cities for the twenty-eight weeks of 1936 was 12.8 as against a rate of 12.1 for the corresponding period of last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Chicago

Births Must Be Reported Within Ten Days.—Physicians are asked to recognize the significance of reporting the births of infants to the board of health, in compliance with an Illinois statute making it mandatory that all births be reported within ten days after they occur. Recently it was found necessary to bring suit against some physicians who failed to report births on time. The board is reluctant to initiate such proceedings. The reporting of births is, however, a civic duty.

Chicago Leads in Traffic Fatalities.—Chicago reported more automobile traffic deaths for the first five months of 1936 than any other city in the country, according to a report of the National Safety Council. Seventy-nine deaths were recorded during May as compared with forty-nine in May 1935. For the first five months of 1936, 315 fatalities were reported as against 305 for the corresponding period last year. For the country as a whole, traffic deaths in May 1936 were 7 per cent higher than for May 1935.

Memorial to Dr. Wilder.—A memorial to the late Dr. William H. Wilder has been established in the form of the William Hamlin Wilder Foundation, according to an announcement of the Chicago Ophthalmological Society. Its purpose will be to establish and maintain a lectureship in ophthalmology or an allied topic. The lecture will be given every year and the interest from a fund of $10,000, now being raised, will be used for the payment of an honorarium to the lecturer and to defray expenses of publication of the lecture. The administrative details are vested in a committee composed of the president and the three most recent past presidents of the Chicago Ophthalmological Society, while the financial details will be managed by the Northern Trust Company. Friends and colleagues of the late Dr. Wilder are invited to send their contributions to the Wilder Foundation, Northern Trust Company of Chicago. At the time of his death in 1935, Dr. Wilder was professor emeritus of ophthalmology, Rush Medical College. He had served as president of the American Academy of Ophthalmology and Otolaryngology in 1931 and of the American Ophthalmological Society in 1918. At one time he was vice president of the Illinois Society for the Prevention of Blindness. He was chairman of the Section on Ophthalmology of the American Medical Association in 1907-1908 and a member of the House of Delegates during 1926, 1927, 1928, 1930 and 1931.

INDIANA

Society News.—Dr. Goethe Link, Indianapolis, discussed the "Diagnosis and Treatment of the Less Obvious Thyroid Diseases" before the Jefferson County Medical Society in Madison recently. Dr. James O. Ritchey, Indianapolis, discussed diseases of the chest before the society, June 22.——At a meeting of the Jasper-Newton County Medical Society in Rensselaer, May 28, Dr. George J. Garceau, Indianapolis, spoke on diseases of the joints.——The Wabash County Medical Society was addressed in Wabash, June 3, by Drs. Jack E. Pilcher, Frank B. Ramsey and John H. Greist, Indianapolis, on "Postoperative Complications and Their Treatment."——Dr. Angus C. McDonald, Warsaw, discussed "Physiologic Action of Digitalis" before the Kosciusko County Medical Society in Mentone, May 12.——At a meeting of the Wayne-Union Counties Medical Society in Liberty, June 11, Dr. Henry B. Freiberg, Cincinnati, spoke on management of prostatism.

IOWA

Dr. Nomland Appointed Head of Department.—Dr. Ruben Nomland, for the past six years instructor in dermatology and syphilology, Rush Medical College, has been appointed professor and head of the recently organized department of dermatology and syphilology at the State University of Iowa College of Medicine, Iowa City, effective July 1. Dr. Nomland graduated at Rush Medical College in 1925. He spent three years at the Mayo Foundation, specializing in dermatology and syphilology. He has been a member of the faculty at Rush for eight years.

KANSAS

Personal.—Dr. Mirl C. Ruble, Parsons, has been named a member of the state board of medical examination and registration for a term of four years; he succeeds Dr. John D. Pace, Parsons.——Dr. Mary A. T. DeMotte, Phillipsburg, has been named health officer of Phillips County, and Dr. Grant R. Hastings, Lakin, of Kearny County.

Liaison Committees.—A plan is under way to organize liaison committees in the Kansas Medical Society to work with the state board of health and provide a statewide and unified method by which the society may offer closer cooperation and assistance in administration of the Social Security Act and other health programs of the state. These committees are

composed of one chairman and two members representing each county medical society and the members in counties which do not maintain chartered societies; they will serve in a liaison capacity with the physicians of their county, the county health department, the state board of health and other public health agencies. Dr. Howard L. Snyder, Winfield, president of the state medical society, requested that these committees be formed by July 15, the state journal reports.

KENTUCKY

Illegal Practitioner Sentenced.—Clyde Barlow was recently convicted of practicing medicine without a license and fined $50 by Judge Strange in the Powell County Court, Stanton. Failing to pay, he was sentenced to work out the fine and costs at hard labor.

Dr. Moore Receives Award.—Dr. John Walker Moore, dean of the University of Louisville School of Medicine, received the university's 1936 Award of Merit. Among points mentioned in his citation were the following: "significant contribution through research on cardiovascular functions; establishment a decade ago of the student unit system of clinical instruction; effective and stimulating teaching." Dr. Moore has been associated with the university since 1915. He was made professor of medicine in 1923 and dean in 1928. He was graduated from the University of Pennsylvania School of Medicine in 1912.

School for Health Officers.—The annual school for city and county health officers was conducted by the state department of health in Louisville, June 3-6. Dr. Thomas Parran Jr., surgeon general, U. S. Public Health Service, Washington, D. C., spoke at a dinner meeting and other guest lecturers were Dr. Clifford E. Waller of the U. S. Public Health Service, on training of public health personnel; Dr. Joseph E. Moore, Baltimore, syphilis; Dr. Paul P. McCain, Sanatorium, N. C., tuberculosis control, and James O. Clarke, B.S., of the U. S. Food and Drug Administration, dangers from spray residues on fruits and vegetables.

MASSACHUSETTS

Changes at Harvard.—The following promotions on the faculty of Harvard University Medical School, Boston, recently appeared in the *New England Journal of Medicine:*

Dr. Robert M. Green, associate professor of applied anatomy.
Dr. Charles F. McKhann, associate professor of pediatrics and communicable diseases.
Dr. Jacob E. Finesinger, assistant professor of psychiatry.
Dr. William G. Lennox, assistant professor of neurology.
Dr. Henry R. Viets, associate in neurology.
Dr. Harry C. Solomon, associate professor of psychiatry.

Personal.—Dr. William B. Castle, associate professor of medicine, Harvard University Medical School, Boston, was awarded the honorary degree of doctor of medicine by Utrecht University, June 24, the tercentenary of the university, according to the *New England Journal of Medicine.*——Dr. Horace Binney has been appointed chief of staff at Boston City Hospital, succeeeding Dr. David D. Scannell, who has been surgeon in chief and chairman of the surgical staff since July 1931. Dr. Scannell resigned to devote his time to private practice, it is reported.——Dr. William E. Castle, since 1908 professor of genetics, Harvard University, Boston, will retire in September with the title of professor emeritus. He has been associated with the university since 1903.——Dr. Robert T. Monroe, associate in medicine, Harvard University Medical School, has been appointed physician at the Peter Bent Brigham Hospital, effective September 1. He will succeed Dr. Reginald Fitz.

Safety Conference.—The fifteenth annual Massachusetts Safety Conference was held in Boston recently, under the auspices of the Massachusetts Safety Council and cooperating organizations. One session was devoted to industrial health problems with the following speakers:

Robley D. Evans, Ph.D., assistant professor of physics, Massachusetts Institute of Technology, Radium Poisoning.
Edward C. Riley, supervising engineer, Massachusetts granite dust control project, Dust Control in the Small Granite Plant.
Philip Drinker, Ch.E., associate professor of industrial hygiene, Harvard School of Public Health, The Nose as a Natural Dust Filter.

The discussion for this program was led by Dr. Anthony J. Lanza, assistant medical director, Metropolitan Life Insurance Company. Other speakers included Dr. Timothy Leary, medical examiner, Suffolk County, on "Carbon Monoxide Gas, or Indigestion?"; Dr. Cassius H. Watson, president, National Safety Council, and medical director, American Telephone and Telegraph Company, New York, "The National Outlook for Greater Industrial Safety"; Dr. Harry K. Messenger of the Massachusetts Eye and Ear Infirmary, Boston, "Essentials of Eye Examination in Industry."

MICHIGAN

Personal.—Dr. John F. Prendergast has resigned as medical director of Receiving Hospital, Detroit, to engage in private practice. Mr. G. R. Harris, superintendent of Receiving Hospital, has been appointed to succeed Mr. John F. Ballenger as general superintendent of the department of public welfare and administrator of the Wayne County Welfare Administration in Detroit. Both changes are effective July 31.——Dr. George P. Myers, Detroit, has been appointed chief surgeon of the Michigan Central Railroad and acting medical director of the New York Central Lines.

Children's Clinic Dedicated.—The new Children's Clinic established by the Children's Fund of Michigan was dedicated in Traverse City, June 24, with Senator James Couzens delivering the principal address. Several considerations enter into the founding of these clinics by the Children's Fund: (1) giving the rural child the same chance for adequate medical care as the urban child, (2) to make possible observation in the hospital of certain juvenile cases requiring prolonged study, (3) to provide training centers for physicians and nurses, and (4) to develop methods and facilities which can be used by other child health agencies. The fund locates each clinic adjacent to a well operated general hospital to keep from building additional hospital beds. In Traverse City Munson Hospital has been selected.

Society News.—The Eaton County Medical Society is now publishing a bulletin; Dr. John T. Hodgen, Grand Rapids, discussed osteomyelitis at a recent meeting of the society.——At a meeting of the Ionia-Montcalm Counties Medical Society in Palo, June 9, Dr. Francis A. Hargrave, Palo, was the guest of honor in recognition of his completion of fifty years in the practice of medicine. Speakers included Dr. Richard R. Smith, Grand Rapids, on cancer.——Dr. Carl V. Weller, Ann Arbor, discussed "The Pathology of Automobile Accidents" at a meeting of the Washtenaw County Medical Society recently. Lieut. Herbert McCaske of the Detroit Police Department spoke on "Our Traffic Problem"; Dr. Max M. Peet, Ann Arbor, "First Aid Treatment of Injuries to the Head and Back," and Dr. Charles L. Washburne, Ann Arbor, "Management of Injuries to the Body and Extremities."

MINNESOTA

Osteopath Receives Suspended Sentence.—Wayne A. Hockett, who holds a license to practice osteopathy in Minnesota, pleaded guilty in Owatonna, April 20, to practicing medicine without a license. This was said to be the first arrest in eight years of an osteopath on this charge. Hockett, who had practiced nearly two years in Waseca, had between March 2 and March 21 written two prescriptions for medicine to be taken internally by one Max Schoenfeldt, who was suffering from cancer of the pancreas with metastasis to the liver. Hockett also gave Mr. Schoenfeldt two injections in the arm of a so-called cancer serum, for which he received $150 in advance. A third injection was to be given but, because of the severe illness of the patient, was never administered. Mr. Schoenfeldt died March 26. Following a complaint by a relative, $100 of the fee was returned. A release, which Hockett had drawn up by his attorney, specifically stated that Hockett had treated Schoenfeldt for cancer. It also provided that the widow was to return to Hockett the remainder of the capsules and pills then in her possession. When Hockett was interviewed he stated he did not know the name or the ingredients of the serum that he had injected in Mr. Schoenfeldt's arm. Judge Senn sentenced Hockett to pay a fine of $250 or serve 120 days in the Waseca County Jail but suspended the sentence pending Hockett's good behavior and on condition that he refrain from violating the medical practice act in the future.

MISSISSIPPI

Course on Pediatrics.—A course in pediatrics opened in Clarksdale, July 6, with Dr. Robert A. Strong, professor of pediatrics, Tulane University of Louisiana School of Medicine, New Orleans, as the lecturer. The course is sponsored by the Mississippi State Medical Association, the state board of health, the school of medicine and the graduate school of medicine at Tulane and the state hospital association in cooperation with the Mississippi State Pediatric Society. The lectures cover a discussion of the new-born, nutritional requirements, nutritional diseases in infancy and childhood, immunizations, and the most frequent causes of vomiting in infancy. The course consists of five lectures a week and will continue ten consecutive weeks throughout the state.

MISSOURI

Society News.—The Lawrence, Stone and Barry County Medical Society was organized in Aurora, June 24, with Dr. Leonard Mason Lyons, Pierce City, president. The new society takes the place of the Barry County Medical Society. Other officers are Drs. Lewis H. Ferguson, Monett, vice president, and Jesse A. Stocker, Mount Vernon, secretary. Its next meeting will be in September.——Dr. Thomas G. Orr, Kansas City, discussed "Treatment of Diseases of the Gall Tract" before the Buchanan County Medical Society, June 3. ——At a meeting of the Dallas-Hickory-Polk County Medical Society in Halfway, June 2, Dr. Ernest Loyd Cartwright, Springfield, spoke on "Abnormal Conditions in Pregnancy."—— The Cole County Medical Society was addressed, May 21, by Drs. Mazyck P. Ravenel, Columbia, and George D. Kettlekamp, Koch, on prevention and early diagnosis of tuberculosis. The meeting was a joint one with the Cole County Tuberculosis Society and the Parent-Teacher Association.

NEW MEXICO

Society News.—Dr. James R. Scott, Albuquerque, was elected president of the New Mexico Public Health Association at the annual meeting in May. Paul S. Fox, C.E., Santa Fe, is secretary. The association adopted a resolution petitioning the President and Congress of the United States to assume the function, through proper administrative channels, of preventing the advertisement of remedies sold for profit for the alleged cure of cancer, tuberculosis and syphilis.

NEW YORK

Lake Keuka Meeting.—The thirty-seventh annual meeting of the Lake Keuka Medical and Surgical Association was held at Penn Yan, July 16-17. Speakers included Dr. Floyd S. Winslow, Rochester, on "Trends in the Progress of Medicine"; Dr. Charles C. Higgins, Cleveland, "Recent Experimental Observations Dealing with the Production and Solution of Urinary Calculi and the Clinical Management of Patients"; Dr. Stuart W. Harrington, Rochester, Minn., "Surgical Treatment of Diaphragmatic Hernia" and B. E. Sackett, LL.B., of the federal bureau of investigation, Buffalo, "Work and Functions of the Federal Bureau of Investigation."

Pharmacists Condemn Socialized Medicine.—At the annual meeting of the New York State Pharmaceutical Association at Bolton's Landing, June 17, Mr. David N. Ditchek, Brooklyn, chairman of the committee on socialized medicine and compulsory health insurance, presented a report in which he pointed out that changes in systems of medical, dental and pharmaceutical practices will affect the pharmacist no less than other professions. He urged pharmacists to become interested in the movements toward socialized medicine. The association adopted a resolution condemning the New York Edison Company, a corporation, for entering the practice of medicine, dentistry and pharmacy.

New York City

Jacobi Fellowship Awarded.—The Mary Putnam Jacobi fellowship of $1,000 for graduate work abroad has been awarded to Dr. Angeline F. Simecek. Dr. Simecek graduated from the University of Nebraska College of Medicine, Omaha, in 1933 and for the past three years has been on the staff of the New York Infirmary for Women and Children. The fellowship is offered by the Women's Medical Association of New York City.

Society News.—The Physicians Equity Association of America, Inc., held its first annual golf tournament and dinner at the Scarsdale Golf Club, Hartsdale, June 30.——The Brooklyn Thoracic Society was recently formed with Dr. Foster Murray as president, and Dr. Alexander L. Louria as secretary. The society plans to hold its meetings in the building of the Medical Society of the County of Kings and to hold stated clinics in the hospitals of Brooklyn. The first scientific meeting will be the third Friday in October.

Gifts to New York University.—Among recent gifts to New York University are the following for medical purposes:

Carnegie Corporation of New York, $8,750 for support of the college of medicine.

Milbank Memorial Fund, $1,200 for the gonococcus project under the direction of Dr. Charles Hendee Smith.

Lucius M. Littauer, $1,000 for a special fund for the department of forensic medicine.

International Cancer Research Foundation, $1,000 for research in cancer under direction of Prof. Robert Chambers, Washington Square College.

Sundry donors, $1,445 for research in pneumonia under direction of Dr. Jesse G. M. Bullowa.

New York Reduces Automobile Death Rate.—The National Safety Council reports that for the first five months of this year the city death rate from automobiles was 9.3 per hundred thousand, the lowest achieved by any large city in the country. The number of persons killed was 276, as compared with 349 in the same period last year. The city won second place last year in the safety contest sponsored by the council and is at present leader in this year's contest. New York State has made a 14 per cent reduction in automobile fatalities for the first five months of this year; 829 persons were killed as compared with 965 for the corresponding period of 1935.

Hospital Positions Under the Civil Service.—Mayor La Guardia has signed a resolution adopted by the Municipal Civil Service Commission placing under civil service many positions in the city department of hospitals hitherto exempt. Approval by the state civil service commission is necessary to make the ruling effective. About 4,000 persons will be affected. Present holders of the positions will take examinations to determine whether they are qualified and those found deficient will be dismissed, the New York *Times* reports. The positions placed in the competitive classes by the resolution include those of bakers, butchers, dentists, laundrymen, orderlies, supervisors, laboratory assistants and helpers, matrons, pharmacists, tailors, telephone operators, watchmen, electricians, carpenters, tinsmiths, plumbers, clerks, assistant alienists, coffee roasters and seamstresses.

OHIO

Doctors' Symphony Orchestra Completes Tenth Year. —The Doctors' Symphony Orchestra of Akron ended its first decade with its sixty-first concert June 7 at the Edwin Shaw Sanatorium. During the ten years sixty-five physicians and dentists have been members of the orchestra. Its present strength is thirty-seven. Dr. Alexander S. McCormick organized the orchestra and has been its director throughout the ten years.

PENNSYLVANIA

Personal.—Dr. George W. Reese has resigned as superintendent and surgeon-in-chief of the Shamokin Hospital, Shamokin; Dr. Robert Y. Grone, Danville, was appointed chief surgeon to succeed him.——Dr. Charles I. Shaffer, Ralphton, has been appointed superintendent of the Somerset County Home and Hospital, Somerset.

County Society Buys a Home.—The Montgomery County Medical Society recently bought the Ersine Tennis Club, Norristown, as a permanent home and took possession July 1. A fund was started toward a home for the society in 1905, when Dr. Oscar H. Allis, Philadelphia, gave ten dollars as a nucleus. Dr. Allis died in 1921. Dr. Walter J. Stein, Ardmore, is president of the society and Dr. Edgar S. Buyers, Norristown, secretary. Dr. Buyers is chairman of the board of trustees of the Medical Society of the State of Pennsylvania.

Society News.—Among speakers at a meeting of the Sixth Councilor District of the Medical Society of the State of Pennsylvania in Philipsburg, June 4, were Drs. John O. Bower, Philadelphia, on appendicitis mortality; Richard A. Kern, Philadelphia, clinical allergy; Chauncey L. Palmer, Pittsburgh, social security and Pennsylvania legislation; Alexander H. Colwell, Pittsburgh, president of the state society, the dual purpose of the medical society, scientific and economic; Walter F. Donaldson, Pittsburgh, secretary of the state society, responsibilities of membership, and John M. Quigley, Clearfield, history of medicine in Clearfield County. Drs. William H. Morrow, Bellwood, and John I. Brockbank, DuBois, received certificates for fifty years of medical practice.

Philadelphia

Woman's Medical College News.—Dr. Martha Tracy, dean of the Woman's Medical College of Pennsylvania, after a year's leave of absence resumed her duties July 1. Dr. Rose Hirschler has been appointed professor of dermatology; Dr. M. Agnes Gowdey, assistant instructor in clinical obstetrics, and Dr. Helen B. Thompson, assistant in clinical surgery.

Advisory Staff for Mental Hospital.—Mayor Wilson has appointed an advisory staff to supervise treatment of patients at the Philadelphia Hospital for Mental Diseases at Byberry. They are Drs. Wilbur P. Rickert, superintendent of the hospital; Frederick H. Allen, Charles W. Burr, Earl D. Bond, George Wilson, Frederic H. Leavitt and Wilmer H. Krusen.

Hospital News.—Dr. William H. Teller has been made emeritus surgeon of the Jewish Hospital and Dr. Norman S. Rothschild has been elected to the staff in his place. Dr. Frank

L. Follweiler, Jenkintown, has been elected head of the physical therapy department to fill the post vacated by Dr. Frank H. Krusen, who went to the Mayo Clinic, Rochester, Minn., several months ago. Dr. William Duane Jr. has succeeded Dr. Nicholas Gotten as neurosurgeon at the hospital.

Dr. Reimann Appointed Professor at Jefferson.—Dr. Hobart A. Reimann, associate professor of medicine at the University of Minnesota Medical School, Minneapolis, and Graduate School of Medicine, Minneapolis-Rochester, has been appointed Magee professor of practice of medicine and clinical medicine at Jefferson Medical College, Philadelphia, effective September 1. Dr. Reimann was associated with the Rockefeller Institute for Medical Research, New York, and Peiping Union Medical College, Peiping, China, before he went to Minnesota. The college also announced the following promotions: Drs. Martin E. Rehfuss to be professor of clinical medicine; Henry K. Mohler, clinical professor of therapeutics, and Baldwin L. Keyes, clinical professor of psychiatry.

RHODE ISLAND

Society News.—Dr. William A. Horan, Providence, addressed the Providence Medical Association in Providence, May 4, on backache.——A symposium on surgery of the biliary tract was presented at the quarterly meeting of the Washington County Medical Society, Westerly, R. I., July 8, by Drs. Frederic V. Hussey, Eliot A. Shaw, Meyer Saklad and Jesse P. Eddy III, all of Providence.

TENNESSEE

Promotions at Vanderbilt.—The following physicians on the staff of Vanderbilt University School of Medicine, Nashville, have been promoted to the positions indicated:

Dr. George Summers Johnson, professor of surgery.
Dr. Thomas D. McKinney, professor of clinical surgery.
Dr. Alvin E. Keller, professor of preventive medicine and public health.
Dr. Christopher C. McClure, professor of radiology.
Dr. Thomas C. Butler, assistant professor of pharmacology.
Dr. Nathaniel Schorn Shofner, assistant professor of clinical surgery.

Society News.—Drs. Michael L. Mason, Chicago, and Robert C. Derivaux, Nashville, addressed the Sullivan-Johnson Counties Medical Society, Bristol, June 3, on "Infections of the Hand" and "Recent Advances in the Management of Diabetes Mellitus" respectively.——Dr. Forrest S. LeTellier, Knoxville, addressed the Knox County Medical Society, June 2, on "Conjunctivitis in the New-Born."——A program on maternal welfare was presented at a meeting of the Hardin, Lawrence, Lewis, Perry and Wayne Counties Medical Society, May 26, at Waynesboro, by Drs. J. W. Erwin, Savannah; William T. Pride and R. A. Wallace, Memphis; Samuel C. Cowan and Milton Smith Lewis, Nashville.——Dr. Benjamin C. Arnold, Jackson, addressed the Madison County Medical Society, Jackson, June 2, on "Urethral Stones and Pyelitis."

WISCONSIN

Personal.—Dr. Carl N. Neupert, Janesville, has been appointed supervisor of public health service, a new position created under the social security plan for Wisconsin. His special work will be to establish contact with county medical societies to further tuberculin testing, reduction of goiter incidence and programs of diphtheria prevention and smallpox vaccination.

Appointments to State Medical Board.—Gov. Philip La Follette recently announced the following appointments to the state board of medical examiners: Dr. Henry O. McMahon, Milwaukee, to succeed the late Dr. John E. Guy; Dr. Adam J. Gates, Tigerton, to succeed Dr. John R. Venning, Fort Atkinson, and Dr. Cornelius H. Cremer, Cashton, to succeed Dr. Robert E. Flynn, La Crosse. Dr. Henry J. Gramling, Milwaukee, was reappointed.

State Radiologic Meeting.—The twelfth annual meeting of the section on radiology of the State Medical Society of Wisconsin was held in Kenosha June 5-6. A symposium on tuberculosis was presented by Drs. Carroll E. Cook, Chicago; Harold M. Coon, Stevens Point; Marcus Fernan-Nunez and Forrester Raine, Milwaukee. Among other speakers were Dr. Henry Schmitz, Chicago, "Prevention and Treatment of Skin Reactions"; Robert S. Landauer, Ph.D., Chicago, "Physical Problems in X-Ray Therapy," and Dr. Chester H. Warfield, Chicago, "Bone Tumors." Dr. Hans W. Hefke, Milwaukee, was elected president and Dr. Russell F. Wilson, Beloit, secretary.

Physicians for Fifty Years.—Drs. Albert J. Hodgson and Joseph B. Noble, Waukesha, were guests of the Waukesha County Medical Society at a dinner at The Spa, Waukesha, June 3, in honor of the fiftieth anniversary of their medical practice, the *Wisconsin Medical Journal* reports. Drs. Richard E. Davies and Frederick J. Woodhead, Waukesha, paid tribute to the guests of honor and Dr. Arthur W. Rogers, Oconomowoc, councilor of the first district, also made a short address. Dr. Hodgson and Dr. Noble were born in 1858 and both were graduated from Rush Medical College, Chicago, in 1886. Dr. Hodgson founded The Spa twenty-six years ago; he has been retired from active practice for many years. Dr. Noble has been physician to the state industrial school for fifteen years. Dr. Frank L. Grover, Hartland, president of the county society, had charge of arrangements.

Conference on Industrial Medicine.—An industrial medical conference will be held at Wausau, July 27-28, under the auspices of Employers Mutuals, insurance firms of Wausau, in commemoration of their twenty-fifth anniversary. Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, will be the speaker at the banquet Monday evening, July 27, at the Rothschild Pavilion, near Wausau, on "Medical Organization and the Nature of Medical Practice." At the medical sessions at the Grand Theater, speakers will include:

Mr. Voyta Wrabetz, chairman of the industrial commission of Wisconsin, The Relationship of the Medical Profession to the Compensation Law.
Dr. John Albert Key, St. Louis, Internal Derangements of the Knee.
Dr. Edwin W. Ryerson, Chicago, Injuries and Disabilities of the Shoulder Joint.
Dr. Alfred W. Adson, Rochester, Minn., Surgical Treatment of Peripheral Nerve Injuries.
Dr. Erwin R. Schmidt, Madison, Modern Treatment of Brain Injuries.
Dr. John W. Powers, Milwaukee, Treatment of Compound Fractures and Contaminated Wounds.

PUERTO RICO

University News.—Five students from the University of Cincinnati are doing special work at the School of Tropical Medicine, University of Puerto Rico, San Juan. Dr. Thomas J. LeBlanc, professor of preventive medicine, University of Cincinnati School of Medicine, is in charge of the work of these students. They are Dr. Armine T. Wilson and Messrs. Calvin F. Warner, William M. Fischbach, Homer H. Kohler and Kenneth Hausfeld.

GENERAL

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York, will eventually receive $3,000,000 from the estate of the late Mrs. Helen Slade Ogilvie after the death of her daughter. Neurological Institute of New York will also receive $10,000.

Northern Westchester Hospital, Mount Kisco, $4,000 by the will of the late Charles A. Halstead.

Tarrytown Hospital Association, $1,000 from the estate of Edith C. Batt.

New York Eye and Ear Infirmary, Presbyterian Hospital and Roosevelt Hospital, $10,000 each from the will of the late Samuel Hopkins.

Pennsylvania Hospital, Philadelphia, $12,000 by the will of the late Miss Rebecca A. Hough.

Methodist Episcopal Hospital, Philadelphia, $25,000 by the will of Ida Simpson.

Presbyterian Hospital, Chicago, $25,000; Hospital Association of Lake Forest, Ill., $10,000 by the will of the late C. H. McCormick.

Montefiore Hospital, New York, $5,000 by the will of the late Mrs. Bella Kaufman.

Tacoma General Hospital, Tacoma, Wash., will benefit from the will of the late H. A. Rust, who provided that the income from half his estate of $60,000 be given to the hospital after the death of his youngest grandchild to maintain a free ward for indigent children.

Changes in Status of Licensure.—The state board of medical education and licensure of Pennsylvania has reported the following action taken at a meeting June 26:

Dr. Charles W. Dubin-Alexandroff, Philadelphia, license revoked because of his conviction of violation of the Harrison Narcotic Act.

Dr. Thomas Henry McWhorter, Philadelphia, license revoked because of violation of the narcotic law and association with unethical practitioners.

Dr. James Edwin Free, now of Joplin, Mont., license revoked because of his conviction in Montana of violation of the narcotic law.

The board of medical examiners of Oklahoma reports the following action taken at a meeting June 11:

Dr. Horace Porter Routh, Tulsa, license suspended for five years for violation of narcotic laws.

Dr. Alonzo B. C. Davis, Oklahoma City, license revoked for unprofessional conduct, having performed criminal abortions.

Dr. Guy E. Brewer, Garber, license revoked for unprofessional conduct, having performed criminal abortions.

Dr. Franklyn Albert Howell, Oklahoma City, license revoked for violation of narcotic laws.

Dr. Young Anderson Howell, Mountain View, license suspended for one year for violation of narcotic laws.

The State Medical Board of the Arkansas Medical Society reports the following action taken at a recent meeting:

Dr. Charles Othello Ozias, Eureka Springs, license revoked for advertising a special ability to treat or cure chronic and incurable diseases.

Dr. Hektoen Named Chairman of National Research Council.—Dr. Ludvig Hektoen, Chicago, has been appointed chairman of the National Research Council to succeed Frank R. Lillie, Ph.D., Chicago. For three terms of one year each, Dr. Hektoen has been chairman of the division of medical sciences of the council, which has headquarters in Washington, D. C., and acts in an advisory capacity to the federal government in research matters. In 1887 Dr. Hektoen graduated from the College of Physicians and Surgeons of Chicago. He has served as pathologist to Cook County Hospital, lecturer in pathology at Rush, physician to the coroner's office, professor of pathology at his alma mater, and professor of morbid anatomy and since 1898 as professor of pathology at Rush. From 1901 to 1934 he was professor and head of the department of pathology, Division of Biological Sciences, University of Chicago, retiring in the latter year to become professor emeritus. Since 1902 he has been director of the McCormick Institute for Medical Research. He has been editor of the *Journal of Infectious Diseases* since 1904 and of the *Archives of Pathology* since 1926. Societies of which he has been president include the Chicago Medical Society, 1919-1921; Chicago Pathological Society, 1898-1902; Association of American Pathologists and Bacteriologists, 1901; Society of American Bacteriologists, 1929; Society of Immunologists, 1927; Institute of Medicine of Chicago, 1929. In 1909 he was vice president of the American Association for the Advancement of Science and for several years has been chairman of the Committee on Scientific Research of the American Medical Association. He has received various honorary degrees and has written numerous articles on pathology, bacteriology and immunology.

Society News.—The sixteenth annual meeting of the American Society for the Hard of Hearing was held in Boston May 26-30, with 575 registrants, the largest number on record. It was voted to hold biennial conferences hereafter, with zone conferences in alternate years. There are now 156 local societies in the United States.——Dr. Marion C. Pruitt, Atlanta, Ga., was elected president of the American Proctologic Society at the annual meeting in Kansas City in May. Dr. Clement J. DeBere, Chicago, was elected vice president and Dr. Curtice Rosser, Dallas, was reelected secretary. The next meeting will be held in Atlantic City in June 1937.——The first National Conference on Educational Broadcasting will be held in Washington, D. C., December 10-12. C. S. Marsh of the American Council on Education, 744 Jackson Place, Washington, is executive secretary of the planning committee. All organizations interested in radio as a social force, nationally or regionally, are invited to participate.——The American Congress of Physical Therapy will hold its fifteenth annual clinical and scientific session at the Waldorf Astoria, New York, September 7-11.——Dr. Earle G. Brown, secretary of the Kansas Board of Health, Topeka, was elected president of the State and Provincial Health Authorities of North America at its fifty-first annual meeting in Vancouver, B. C., June 23.——The Biological Photographic Association invites all photographers and scientists interested to attend the sixth annual convention in Boston, September 24-26, at the Hotel Lenox. Active membership is open to those whose duties include biologic photography; any one interested may become an associate member. The president is Louis Schmidt, Rockefeller Institute for Medical Research, New York, and the secretary, Miss Anne Shiras, University of Pittsburgh School of Medicine.

CANADA

Personal.—Sir Frederick Banting, professor of medical research, University of Toronto Faculty of Medicine, Toronto, has been elected to fellowship in the Royal College of Physicians, London.——Dr. Maude E. Abbott, assistant professor of medicine and curator of the museum of the history of medicine at McGill University Faculty of Medicine, is retiring this year, according to the *Canadian Medical Association Journal.*

University Graduate Courses.—The Medical Faculty of Queen's University, Kingston, announces a graduate course in medicine, surgery, gynecology, bacteriology, radiology and special apparatus, September 7-11.——The University of Toronto Faculty of Medicine will offer a course in general surgery of the abdomen to physicians who have had satisfactory training in surgery. The course will begin September 28 and continue for a week at the Toronto General Hospital, St. Michael's Hospital, Hospital for Sick Children and the Toronto Western Hospital and at Banting Institute.——The University of Western Ontario, London, announces its annual refresher course for September 14-18.

Government Services

Changes in Public Health Service

Dr. Erval R. Coffey has been promoted and commissioned as surgeon and Drs. Frederick T. Foard and Winfield Kennedy Sharp Jr. have been appointed and commissioned as surgeons in the regular corps of the public health service. Other changes include the following transfers:

Medical Intern Marion T. Yates, relieved at Chicago and assigned to U. S. Hospital for Defective Delinquents, Springfield, Mo., for duty.

Medical Intern Emanuel Rollins, relieved at U. S. Marine Hospital, San Francisco, and assigned to U. S. Hospital for Defective Delinquents.

Medical Intern Howard T. White, relieved at U. S. Marine Hospital, St. Louis, and assigned to U. S. Marine Hospital, Stapleton, N. Y.

Medical Intern Earl F. Gates, relieved at U. S. Marine Hospital, San Francisco, and assigned to Detroit.

Appointment of Medical Officers in Regular Army

The following named first lieutenants, medical corps reserve, have been tendered appointment as first lieutenants, medical corps, regular army, with rank from July 1, 1936: Waldron Lewis Morse, Canton, Maine; Charles Bateman Perkins, Seattle; Clarence Asa Tinsman, Roxbury, Va.; Gustave Freeman, Chicago; Fred James Black, Detroit; Samuel Henry Worthen Jr., Afton, Wyo.; Robert Hough Jordan, Farmingdale, N. Y.; Clark Bolton Meador, Grand Canyon, Ariz.; John Chisholm Fitzpatrick, Jamestown, N. D.; Levi Martin Browning, Wauwatosa, Wis.; John William Kemble, Rochester, Minn.; Raymond McKinley Williams, Tahlequah, Okla.; Benjamin Anderson Strickland Jr., Baltimore; John William Raulston, Sheffield, Ala.; Charles Henry Moseley, El Paso, Texas; William Ferrall Cook, El Paso; Erving Francis Geever, El Paso; Conn Lewis Milburn Jr., El Paso; James Thomas McGibony, San Antonio; Robert Henry Blount, San Antonio; John Kemp Davis, San Francisco; Louis Frederick Hubener, San Antonio; Wilbur Carmen Berry, San Antonio; Karl Herbert Houghton, San Francisco; Albert Charles Krukowski, San Antonio; Kenneth Somers, San Francisco, and Edward Sigerfoos, Denver.

Summary of Legislation Affecting Army Medical Department

The Seventy-Fourth Congress enacted legislation of far reaching benefit and importance to the Medical Department of the U. S. Army. Medical Reserve Officers Training Corps units, which have been discontinued for several years because of prohibitive legislation, are being reestablished as a result of provisions of the War Department Appropriation Act. Instruction will begin in October in many of these units. Fifty officers will be added to the Medical Corps, the first increase since 1920. An increase in the enlisted force from 118,000 to 165,000 has brought about a serious shortage in medical and dental officers. Funds for maintenance of army hospitals have been increased and the appropriation for the purchase of medical and hospital supplies is the largest for this purpose in the history of the army in peace time. The sum of $20,660 was appropriated for purchase of books for the surgeon general's library and $37,000 was set aside for publication of the *Index Catalogue*, which has been suspended for two years. Adequate appropriations have also been provided for administration of the Army Medical Museum and for research by the medical department. Opportunity for practical training for medical department reserve officers will be improved by the increase in the appropriation for training of the officers' reserve corps. It is anticipated that the medical officers' training camp at Carlisle, Pa., will be larger than in many years.

CORRECTION

Intravenous Therapy.—In Queries and Minor Notes in THE JOURNAL, July 4, page 60, it was stated that Dutton's book on "Intravenous Therapy," published by the F. A. Davis Company, Philadelphia, in 1925 is the most extensive book on the subject available at present. Mention should have been made of a later volume on "Parenteral Therapy" by Dutton and Lake, published by C. C. Thomas, Springfield, Ill., in 1936.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 6, 1936.

Reform of the Medical Curriculum

The General Medical Council is the body which regulates medical education. The council appointed a curriculum committee, which a year ago presented a report, which was circulated to the licensing bodies and the medical schools for their observations. In addition, observations were furnished by the minister of health, a special committee on medical education appointed by the British Medical Association, the council of the Section of Radiology of the Royal Society of Medicine, and the general council of the Trades Union Congress. Following the receipt of the observations made by the licensing bodies and medical schools a second interim report was made by the curriculum committee and was also submitted. Observations were received from twenty-two of the twenty-three licensing bodies and seventeen of the twenty-five medical schools. These were carefully considered by the committee, with the result that new resolutions in regard to the medical curriculum have now been adopted by the council. These will come into operation Jan. 1, 1938, as regulations for medical education.

PREREGISTRATION REQUIREMENTS

Every applicant for registration as a medical student must pass (1) a recognized preliminary examination in general education and (2) in chemistry, physics and biology, including the fundamental facts of vegetable and animal structure, life history and function, and an introduction to the study of embryology. The examination in biology may be taken either before or after registration as a student.

THE MEDICAL CURRICULUM

The period of study must not be less than five academic years. The first two years should be devoted to professional scientific subjects, with an introduction to clinical methods. The last three years should be devoted to clinical subjects, with the clinical application of the professional scientific subjects. Throughout the whole period the student's attention should be directed to the importance of the measures by which normal health may be assessed and maintained, and to the principles and practice of the prevention of disease.

PERIOD OF PROFESSIONAL SCIENTIFIC SUBJECTS (FIRST AND SECOND YEARS)

The courses should include (1) dissection of the entire cadaver, (2) anatomy of the living body, (3) elements of human embryology, (4) histology, (5) the elements of genetics, (6) the principles of general physiology, the chemistry and physics of bodily functions to be studied as far as possible in man, (7) the elements of normal psychology, (8) methods of clinical examination, including the ophthalmoscope and the examination of body fluids, (9) normal reactions of the body to injury and infections as an introduction to general pathology and bacteriology, and (10) an introduction to pharmacology.

PERIOD OF CLINICAL STUDIES (THIRD, FOURTH AND FIFTH YEARS)

A minimum period of three years should be given to clinical study at an approved hospital after passing the examination held at the close of the second year. The subjects are as follows:

1. Medicine, including: (*a*) systematic instruction in principles and practice; (*b*) a clinical clerkship in hospital wards for six months; (*c*) not less than one month in residence in a hospital or conveniently nearby, during which the student is attached to the medical wards; (*d*) a clinical clerkship for not less than one month in a children's ward or hospital; (*e*) regular attendance at an outpatient department for three months; (*f*) regular instruction and demonstration in applied anatomy and physiology during the period of clinical studies, to be carried out by the teachers of anatomy, physiology and the clinical subjects; (*g*) methods of treatment, including dietetics, therapeutics and prescribing, physical therapy and principles of nursing; (*h*) diseases of children and child welfare, acute infectious diseases, tuberculosis, industrial diseases, psychology and mental disorder and deficiency, diseases of the skin, radiology and vaccination.

2. Surgery, including (*a*) systematic instruction in principles and practice; (*b*) assistantship to a surgeon for six months; (*c*) not less than one month's residence in a hospital; (*d*) regular attendance in a surgical outpatient department for three months; (*e*) instruction in surgical methods, including physical therapy; (*f*) instruction in minor operative surgery on the living; (*g*) administration of anesthetics; (*h*) a course of operative surgery; (*i*) applied anatomy and physiology; (*j*) surgery of infancy and childhood, ophthalmology, diseases of eye, ear, nose and throat, radiology, venereal diseases, orthopedics and dental diseases.

3. Midwifery, infant hygiene and diseases of women, including (*a*) systematic instruction in midwifery and gynecology, applied anatomy and physiology of pregnancy and labor; (*b*) clinical lectures and demonstrations, attendance on a maternity ward and inpatient and outpatient gynecologic practice for six months; (*c*) not less than two months as resident pupil in a maternity ward, where the student should attend not less than twenty cases; (*d*) instruction in antepartum and postpartum care, management of the puerperium and care of the new-born infant.

4. Pathology and bacteriology, including courses in general and special pathology and morbid anatomy, clinical and chemical pathology, general and clinical bacteriology, immunology and immunization.

5. Pharmacology and materia medica, including pharmacy.

6. Hygiene and public health.

7. Forensic medicine.

8. Legal and ethical obligations of physicians.

The First Antigas School

The extensive measures which are being taken by the government for the protection of the civilian population against aerial gas attacks have been described in previous letters. The first civilian antigas school has been opened in Gloucestershire, a western county and therefore a long distance for aircraft coming from the continent to travel. The school has been established to give instruction in antigas measures to members of the public services concerned with civil air raid precautions. Later, facilities will be provided for the training of instructors of certain classes of industrial and commercial undertakings of importance. The instruction will be undertaken by the government, and it will then be for the local authorities to arrange for instruction to be given locally by men trained in the school. The equipment and cost of instruction and accommodation is provided by the government, but each student is asked to pay $1.50 a day for his food. Each course will last ten working days and be taken by thirty students, the syllabus embracing gases likely to be encountered in air attacks, technical measures of individual and collective protection, administrative and special measures of protection, and guidance in the organization and teaching of local instruction classes. Special courses are provided for the training of instructors primarily concerned in police and fire department duties and first aid and rescue work. The London police and fire departments have already had their instructors

trained, and their program involves the training of 30,000 policemen by April of next year. Special courses of a week's duration are to be provided for physicians and nurses concerned with treatment as distinguished from first aid, and others for the identification of gases. There are also courses for the training of qualified chemists in the detection and identification of gases.

Organization for Protection of Intellectual Liberty

In no country in the world is intellectual freedom greater or safer than in England, but its recent destruction over a large part of the European continent has led leading men to form an organization for the protection of freedom of thought. They include professors, scientists and writers. Prominent among them are men well known in the biologic and medical spheres. The president is Mr. Aldous Huxley, and that great name is represented also by his brother, the biologist Julian Huxley. Another biologist is J. B. S. Haldane (son of the late J. S. Haldane). Most eminent of all is Sir Gowland Hopkins, late president of the Royal Society and the father of modern biochemistry. On the literary side are the Greek scholar Gilbert Murray, the military writer Capt. Liddell Hart, the international historian and authority on foreign policy C. K. Webster, and Miss Rose Macauley. The church is represented by the dean of Canterbury and the law by Sir William Jowitt. An executive committee is organizing committees of scientists, artists, writers and others to undertake lecturing and propaganda work of all kinds. Membership is to be recruited from all the professions and the universities. Events in Germany and elsewhere have shown how easy it is to destroy intellectual freedom. In that country one of the most deplorable incidents was the complete impotence of the intellectuals against the attack. The only effective resistance was made by the Lutheran church. A rather different but analogous organization has been formed by the intellectuals in France, the Comité de vigilance, to protect the country against fascist dictatorship.

PARIS

(From Our Regular Correspondent)

June 27, 1936.

Hyperinsulinism Due to Adenoma of Islands of Langerhans

The first operation for the clinical syndrome due to hyperinsulinism was reported from the Mayo Clinic in 1926. Since then, others have been reported by American surgeons but few from Europe. Such a case was reported at the April 22 meeting of the Académie de chirurgie of Paris by a surgeon of Prague, Jirasek, and two associates. An engineer, aged 28, noticed in 1928, following rapid ingestion of food, that he staggered as if intoxicated. Similar attacks were rare during the next few years, but at intervals, it was impossible to awaken him and he would sleep for thirty-six hours. Various diagnoses had been made before he was seen by Brenner, a neurologist of Prague, early in 1933. The clinical features were those of mental confusion, rapid increase in weight, amnesia at intervals and a marked hypoglycemia. Postranecky, an associate of Jirasek, found a basal metabolism of —8 per cent and a constant hypoglycemia (42 mg. per hundred cubic centimeters) in the morning before taking food. Further study showed that a complex which is considered as being typical of hyperinsulinism existed; i. e., a constant secretion of insulin not bearing any relation to periods of digestion or fasting. The patient was thus always in danger of attacks due to hypoglycemia. Administration of hypophyseal and thyroid extracts was of no avail and operation was decided on. In view of the prolonged duration, a malignant neoplasm in the pancreas was excluded by Jirasek before operation and the diagnosis of an adenoma of the islands of Langerhans seemed the most plausible diagnosis. The operation was performed Dec. 15, 1934, and a nodule the size of a lentil and the shape of a hazelnut was found in the tail of the pancreas. Microscopic study of the excised tumor by Siki revealed it to be an adenoma in the stroma of which were amyloid deposits. The parenchyma of the tumor corresponded in appearance to the cells of the islands of Langerhans. During the first five days after the operation there was a marked glycosuria and hyperglycemia. Following this transitory complication the reactions following the administration of dextrose alone, of insulin and of the two combined, were found to be normal. Since the operation, no attacks due to a hypoglycemia have occurred. No discomfort is experienced even after not eating for a prolonged period. The authors emphasize that one ought always to consider a hypoglycemia or even an adenoma of the islands of Langerhans when the clinical picture is that of brief periods of mental confusion, transitory aphasias or pareses or when epileptiform attacks occur in which poriomania or paroxysmal hypersomnias are noteworthy features. The importance from the medicolegal standpoint of these attacks due to a hypoglycemia cannot be underestimated. After an automobile or machinery accident, those who are responsible are unable to explain how they occurred, in view of the previous experience of the individual as a chauffeur or engineer.

Resection of Pancreas for Chronic Pancreatitis

At the April 22 meeting of the Académie de chirurgie of Paris, Mallet-Guy, a surgeon of Lyons, reported three cases in which the body of the pancreas was resected for chronic pancreatitis. The first case had been presented in May 1935. There was a history of a previous operation, by another surgeon, for a suspected perforation of a gastric ulcer, but no such condition was found. At a second operation, performed by Mallet-Guy, an edematous pancreatitis was found. In spite of drainage, the clinical signs, such as recurrent acute pain over the pancreatic region, digestive disturbances and emaciation, continued. At the third intervention, a walnut-sized area of chronic pancreatitis embedded in cicatricial tissue having been encountered in the body and tail of the pancreas, this portion was resected. An uneventful recovery with disappearance of all clinical signs followed. The resected area measured 8 by 4 cm., and microscopic examination revealed complete replacement of the glandular acini by fibrous tissue with occasional small cyst formation.

In the second case the history resembled that of a gastric ulcer over a period of eighteen years. When the patient was first seen by Mallet-Guy the symptoms were those of an acute pancreatitis. After the acute symptoms subsided, the head of the pancreas was found to be normal in appearance and consistency but the body itself was indurated. There were three large calculi in the gallbladder. The portion of the pancreas in which the area of chronic induration had been found was resected and the gallbladder drained after removal of the calculi. Microscopic examination of the specimen, which measured 8.5 cm. in length, revealed a sclerocystic pancreatitis. All the digestive symptoms disappeared after the operation.

In the third case the history was that of recurrent attacks of severe pain referred to the left half of the abdomen. During one of these attacks a diagnosis of acute ileus had been made. Soon after admission to the hospital, two attacks of severe pain accompanied by high temperature occurred. A hard mass could be felt in the upper part of the abdomen of the greatly emaciated woman. A diagnosis of chronic pancreatitis was made before operation, at which a greatly indurated pancreas was found that corresponded to the mass felt before operation. The body of the pancreas was also resected in this case without any difficulty. Nothing abnormal was found in the biliary tract. The resected portion of the body of the pancreas revealed, as

in the other two cases, on histologic study diffuse sclerocystic changes. The only postoperative incident was a marked transitory hyperglycemia. The resected specimen measured 8 cm. in length.

Mallet-Guy stated that many cases of chronic pancreatitis are not recognized clinically, so that the condition of this viscus should be examined during every operation in the upper part of the abdomen in which no other lesion is found to explain the clinical symptoms. Resection of the body of the pancreas does not present insurmountable technical difficulty and, judging by the end results in his three cases, does not appear to be followed by any demonstrable disturbance of metabolism. In the discussion, Brocq said that in the majority of cases of chronic pancreatitis the induration due to the sclerotic changes is a diffuse one and that a resection of the left half of the pancreas, as was carried out by Mallet-Guy, was possible. If the induration was found to be circumscribed, a cuneiform resection could be performed.

Postoperative Hyperglycemia

The question as to the influence of operations on the urea content of the blood has been the subject of research during the past few years in French hospitals. One of the latest contributions to postoperative blood changes is that of Lambret and Driessens, presented at the April 1 meeting of the Académie de chirurgie of Paris. An increase in blood sugar is constantly observed after operations. Those which have the most influence, i. e., give rise to a hyperglycemia, are operations which have the influence of a trauma on the nervous system and on the development of polypeptides in other tissues. This hyperglycemia would appear to be due to a disturbance of the sympathetic nerves and of the adrenals. Clinical and experimental research have made it possible to combat a postoperative hyperglycemia by the simultaneous intravenous administration of a hypertonic (30 per cent) solution of dextrose, a 20 per cent solution of sodium chloride and insulin. The dextrose appears to excite a production of insulin in addition to that which is injected. The insulin acts on the blood sugar and the proteolysis. Thus the glycogen reserve in the liver is maintained.

In the discussion, Fredet called attention to the work of Roscher, published in 1933, in which the author found that after ether or ethyl chloride anesthesia an increase of from 50 to 80 per cent of the normal blood sugar occurs. There is only a slight hyperglycemia following spinal anesthesia and none at all when local anesthesia is employed. Two theories have been proposed to explain this hyperglycemia when volatile anesthetics are employed: (*a*) an excessive mobilization of the glycogen reserves of the body and (*b*) an increased oxidation in the tissues. A diminution of the glycogen reserve of the liver has been observed in all the cases following the use of ether or ethyl chloride.

Complete Auriculoventricular Dissociation

At the March 13 meeting of the Société médicale des hôpitaux of Paris, Saulie, Cattan and Bachmann reported the case of a woman, aged 71, who had been treated for recurrent attacks of vertigo, less frequently of syncope, accompanied by bradycardia (pulse from 28 to 32) since 1931. At the time of admission in 1935, the pulse was 40 and the blood pressure 300 systolic, 140 diastolic. Electrocardiography revealed a complete auriculoventricular dissociation without notable deformity of the ventricular complex. At intervals, an auricular fibrillation appeared which persisted during two or three, at times even ten, cardiac cycles, and then the dissociation recurred. The particular feature of this rare case is the paroxysmal character of the auricular flutter. The authors could not find a similar reported case. The prognosis of these cases of complete block with flutter presents great difficulty, especially if, as in this case, there is an accompanying hypertension.

The Frei Test in Lymphogranuloma

Frei of Breslau found in 1925 that pus from a case of lymphogranuloma had antigenic properties and hence could be employed in the form of a skin test to detect a specific cutaneous allergy in individuals who had a lymphogranulomatosis in the past or were still infected with the virus of the Nicolas-Favre disease. Doubt arose as to the value of the Frei reaction when Clement-Simon, Braley and Minck in 1935 reported that in fifty prostitutes taken at random the skin test was positive in 8 per cent who did not present any evidence of having Nicolas-Favre disease. Other dermatologists have had a similar experience but the percentage was much lower. Kleeberg was one of the first to show that a positive Frei reaction could be found in carriers of the virus of lymphogranuloma. In addition, the skin sensibility persists for a long time in persons who have had the disease; hence it would not be unusual for prostitutes to be either carriers or apparently cured individuals.

In order to study the question further as to the reliability of the Frei test, Escher and Chaglassian, two dermatologists on the faculty of the American College at Beyrouth, Syria, examined eighty-one prostitutes admitted to the venereal disease service of the Beyrouth hospital, for gonorrhea, cervical erosions and syphilis in the course of treatment. None of these had any discernible signs of the presence of Nicolas-Favre disease. With the exception of one case, the skin reaction in all of the eighty was negative. In this single case, a slightly infiltrated papule appeared which persisted for four days and which, other tests showed, was a doubtful reaction.

In their paper, presented by Levaditi at the April 21 meeting of the Academy of Medicine of Paris, Escher and Chaglassian stated that the Frei reaction can be considered positive only if a papule with a red dome and surrounding infiltration at 4 to 5 mm. appears, which persists for eight to ten days. Even if the doubtful case is included, the reaction was positive in only 1.02 per cent of eighty-one prostitutes chosen at random and not presenting any evidence of the present or past history of having had Nicolas-Favre disease or lymphogranuloma.

Pancreatic Lithiasis and Diabetes

Pancreatic lesions have been the subject of a number of papers at meetings of various Paris societies. Marcel Labbé read a paper March 20 before the Société médicale des hôpitaux in which he stated that pancreatic lithiasis is rare and is associated with diabetes in a third of the cases. Labbé's recent patient was a man, aged 32, who in 1928 had severe pain in the right side of the abdomen accompanied by vomiting but no rise of temperature. A diagnosis of biliary colic had been made. Several similar attacks occurred the following year, but in one of these the pain was referred to the left lumbar region. In 1930 a very severe attack of pain accompanied by jaundice of a week's duration was noted. Following this attack the patient began to lose weight. This continued for the next two years. In 1932 he had a severe attack of pain accompanied by high temperature but no jaundice, and a marked glycosuria was found. In 1933 this condition was noted again, but no further attacks occurred until 1934. From this time on until first seen, the attacks of pain recurred more frequently. Labbé in July 1934 found a polyuria (3,000 cc.), a glycosuria of 241 Gm. and an x-ray shadow the size of a small olive over the head of the pancreas. A hyperglycemia persisted in spite of diet and insulin, accompanied by marked emaciation and fever of a nonremittent type. At operation, by Lardennois, a calculus 11 mm. in length was removed through an incision over the anterior surface of the head of the pancreas. The patient died three days after the operation.

A second case was cited in which the two conditions (lithiasis and diabetes) were associated, the patient dying of a pulmonary tuberculosis. At necropsy an atrophic sclerosis and numerous pea-sized calculi in all parts of the pancreas were found.

Labbé stated that the chief clinical features of a pancreatic lithiasis associated with diabetes are (*a*) the pain, usually referred to the epigastric and left hypochondriac regions, (*b*) symptoms due to absence of pancreatic digestion such as fatty stools and diminution of the pancreatic ferments in the secretion obtained with the duodenal tube, (*c*) the shadows of the calculi and (*d*) the diabetes.

Excess of Deaths Over Births

The "provisional" statistics for 1935 as reported from the ninety departments of France show that the number of deaths exceeded the number of births in the year 1935. There were 298,192 marriages in 1934 and 284,604 in 1935. As to births, there were 677,365 in 1934 as compared to 638,881 in 1935. The number of deaths was 634,525 in 1934 and 658,357 in 1935. The natality, i. e., the excess of births over deaths, showed a plus figure of 42,840 in 1934 and a minus figure of 19,476 in 1935.

BERLIN

(From Our Regular Correspondent)

May 18, 1936.

The Place of Nonspecifics in the Treatment of Syphilis

An extensive discussion developed not long ago in the Hamburg Medical Society between Mulzer, professor of venereology, and Nonne, professor of neurology. Mulzer said that recent syphilis can virtually always be cured by specific chemotherapy, assuming that treatment is timely and energetic. Cases of long standing are not likely to respond to chemotherapy alone, but when it is supplemented by certain nonspecific measures favorable results may be achieved. It is well known too that stubborn cases in which the Wassermann reaction and changes in the cerebrospinal fluid have remained positive over a number of years occasionally show favorable response to heterogeneous nonspecific influences. Not one of the nonspecific methods, however, is reliable enough to permit of systematic application. Only two such procedures have given satisfactory results in cases of persistent positive Wassermann reaction and fluid changes that no longer respond to the ordinary therapy. The first is malariotherapy, which may be combined with the customary chemotherapy without interrupting it. Malariotherapy is superior to the substitute methods formerly recommended in its stead. Nevertheless Mulzer is now, as before, striving to perfect analogous procedures involving febrifacient vaccines. In his characteristic manner, Mulzer completely rejects the drugless methods of so-called Nature Medicine when applied to the treatment of syphilis; he has tested the most various procedures of "Nature Medicine" without obtaining any favorable results whatever.

The remarks of the neurologist Professor Nonne furnished an interesting pendant to the foregoing. He reported several atypical cases of hereditary syphilis in the second and third generations, which wandered completely away from the orthodoxy of the textbooks. In his forty-six years of research, Nonne was able to determine numerous cases in which permanent cures of primary and secondary syphilis were effected without resort to or after quite inadequate treatment with antisyphilitics. The patients usually came of healthy resistant stock and had acquired the infection at a youthful and vigorous age. Nonne also found that in hundreds of cases tabes and paralysis develop even when the patient has undergone intensive or at least not insufficient treatment. The importance of the individual constitution has long been recognized in the treatment of syphilis. It is an old proposition, too, that mercury and iodine are not specific remedies but rather function as alteratives which prepare the way for better therapeutic action by the organism itself. In cerebrospinal syphilis the so-called antisyphilitics are of value only if the disease is of the gummose type. This type, however, according to Nonne's investigation, has become a rarity in recent decades. Tabes also is today less frequent, a fact confirmed by other authors, but the same certainly cannot be said of paralysis. Nonne does not consider it proved that syphilis is 100 per cent curable if energetically and properly attacked in its seronegative stage; he has observed a number of cases in which, on the basis of the foregoing concept, a marriage license was granted and subsequently both wife and children were infected with syphilis.

Of further interest were the points raised by Professor Mulzer in his concluding remarks: He emphasized that under no circumstances is treatment by inunction indicated. If permanent cure is to be effected, a rigorous course of therapy must be instituted, one based on administration of the most powerful medicaments available; namely, arsphenamine and compounds of bismuth. In the treatment with arsphenamine, the administration of subtherapeutic doses is inadvisable. The greater incidence of neurorelapse in former times is attributable to inadequate treatment. Today, as the result of intensive treatment of early syphilis, neurorelapse has become quite a rarity. It is important that all syphilitic patients undergo Quincke's puncture every year or so according to the degree of infection present. The results of these tests should serve as an indication in questions of whether or not a patient should marry. Scruples against lumbar puncture are nowadays baseless; trouble is hardly ever encountered if the proper cannula is used. The appearance of a mercurial or arsphenamine dermatitis exerts virtually no influence on the subsequent course of the disease. Mulzer expressly warns that a positive Wassermann reaction should be regarded more or less as a "physical defect" and hence should be lightly evaluated. Thus Mulzer holds the opposite of the opinion that a positive Wassermann reaction is a certain indication of an active or latent syphilis which is likely to "unmask" itself at any time. The attempt should be made to make the positive reaction in the blood serum disappear by nonspecific means rather than by fruitless chemotherapeutic procedures. The combined use of arsphenamine treatment and malariotherapy is at present the only method of this nature that can be called reliable.

New Data on the Origin of Man

Hans Weinert, anthropologist, recently pointed out to the medical society in Kiel that data concerning the origin of man, already in the possession of specialized science, have yet to become common knowledge. Although the original views of Darwin and of Haeckel based on the so-called descent from the apes have in many respects undergone revision and expansion, the assertion that science should reject as false this earlier theory of the evolutionary process is out of the question. Within the great order of Primates the anthropoid apes occupy a wholly unique place full of amazing significance for the natural history of the human race. Weinert described the results of investigations in the spheres of comparative anatomy and physiology; this material represented in part data that have been available for some time although not well known. In the light of present-day theories of heredity it would appear certain that among the anthropoid apes the orang-utan must figure prominently in evolutionary history, since this species, if the results of recent investigations are to be credited, occupies a place much nearer the lower apes than to the anthropoid gorilla and chimpanzee. The two latter African anthropoids possess in their turn so many inherited characters similar to the human as to point to a common relationship. In 1932 Weinert classified the three species gorilla-chimpanzee-man together as Summoprimates; namely, the most highly developed of the

Primates. Then within this suborder of Summoprimates differentiation of characters was determined among all three species (the two apes and man) which seemed to place the chimpanzee nearer to man than to the other anthropoid apes. Weinert condenses his conclusion, or "anthropopithecus theory," as follows: "There remains extant today an animal species that possesses several inherited characters in common, not with other animals, but with our own human kind. This species is the African chimpanzee. This is not saying we are descended from chimpanzees, but it does mean that there once was an ape-man species the descendants of which still exist today in the chimpanzee and in man, while all other existing species of anthropoid apes became differentiated from this intermediate type at an earlier date and hence fail to exhibit today the chimpanzee-human characters." It is certain that such a species existed at one time but it is impossible to state whether it constituted a race of anthropoid apes or was already a race of ape-men.

The Elimination and Accumulation of Digitalis Glucosides

Professor Lendle of the University Institute of Pharmacology lately discussed before the Berlin Medical Society a new method of testing the volumetric determination of elimination and accumulation of digitalis glucosides. By a procedure of his own device which makes use of "critical infusion velocity" it was possible to determine the amount of glucoside detoxicated by the organism per kilogram and per unit of time. In rabbits this value amounted per hour to 20 per cent of the lethal dose of g-strophanthin and digitoxin. In other animals, different values were determined both in general and for individual glucosides. In his investigations of the tendency to accumulate, Lendle used a combination of the methods of Fränkl and Hatcher: for seven days cats were subjected to small dosages of glucoside subcutaneously injected; on the seventh day the effective residuum of the administered glucoside still present in the organism was determined by titration of the "full lethal dose." This means that an amount of the glucoside in question was injected sufficient to cause the death of the animal, and this amount compared with what would normally constitute a lethal dose. Cumulative after-effects still showed themselves in these experiments when 3 per cent of the lethal dose of digitoxin was administered daily. A daily injection of 7.5 per cent of the lethal dose of k-strophanthin produced similar results. An increase in the daily dosages caused a constant corresponding rise in the cumulative effect, and the accumulation thus attained a higher value as it generally corresponded to the sum of the partial doses administered. Accumulation cannot therefore be considered as merely a chemical storing up. Since injuries to the heart muscle could not with certainty be histologically determined in these cases, such lesions cannot be considered as a cause of the cumulative effect. This demonstration of the intensified effect by distribution of the dosage over a number of days justifies the assumption that the cumulative effect of digitalis is not connected with the phenomena of concentration alone but belongs rather with those of the allobiotically acting substances. Accordingly, the accumulation should no longer be considered solely from the toxicologic point of view but as a prerequisite to uniform digitalization as well, especially if treatment is to be carried on for a considerable period.

The Dental Physicians' Campaign Against the "Dentists"

The fight waged by the dental physicians (zahnärzte) against the dental technicians, the so-called dentists (dentisten), has been mentioned previously (THE JOURNAL, May 18, 1935, p. 1837). A few days ago a conference to discuss more effective organization among dental physicians and better means of extending their practice was held at the ministry of the interior. This is significant. The "dentists," who as a class possess no scientific preparatory training, are able to work for less remuneration than the dental physicians and moreover are not amenable to a licensing control. The national führer of dental physicians accordingly demands the institution of a numerus clausus and a division of the reich into "dental physician districts." The "young dental physicians" will be requested to engage in country practice for from five to seven years before settling in the cities. How successful this offensive of the dental physicians will be is difficult to predict, since among the poorer classes there exists considerable sentiment in favor of the "dentists," and the National Socialist party, which certainly is in sympathy with the Nature Cure movement, could readily apply to the dental physician question the party's frequently skeptical attitude toward the exclusiveness of scientifically trained medical men.

Of further interest are the likewise recent arguments of the national führer of dental physicians before the dental physicians of Berlin. Dental caries is at present the fourth most common of diseases. Yet the campaign against this disease is being obstructed by this assumption of the professional function of the dental physicians by the "dentists" and is further complicated by the inadequate preparatory training of the latter group. A comprehensive program of dental hygiene for children can be carried out only by one single closed professional group the members of which conceive of their calling not as a means to pecuniary gain but as a mission of service in the interest of the German national health. A modern dental physician must be concerned not only with a tooth to be filled but with the diseased surroundings as well. Another important task is to be the standardization of the training and professional status of the dental physician. The success of these endeavors remains doubtful in view of the tendency dominant in Germany at present to prefer more or less paramedical methods and practitioners.

JAPAN

(From Our Regular Correspondent)

May 20, 1936.

Children with Poor Vision

Not until 1932 did the Tokyo municipal officials, for the first time, undertake to investigate the vision of school children. In the following year the first eyesight class was attached to a certain primary school on a small scale. The so-called poor vision in this country means vision that cannot be improved by any glasses. The Ophthalmic Association of Japan has defined it as follows: Children with poor vision of low degree are those who cannot see clearly even with the aid of glasses, the 0.3 in the international vision test chart, while children with a higher degree are those who can barely discern figures 1 meter distant. They are divided into two classes, A and B. Class A contains those who, with glasses, cannot clearly see the 0.3 in the international chart and can discern figures 2 meters distant. Class B includes those who, with the aid of glasses, cannot discern figures 2 meters distant. The Education Office ordered the local government to examine the vision of school children throughout the country last year. Among 3,740,215 boys and 3,625,813 girls examined, they found 4,797 boys (1.25 per thousand) and 5,237 girls (1.44 per thousand) with poor vision. These figures contain 4,258 boys of class A and 4,765 girls of class B. The number of children who were allowed to postpone entering the primary school on account of poor vision was 114, forty-seven of whom were boys and sixty-seven girls. The number with poor vision increases as the school year advances. There are, for instance, in the sixth year class, which is the highest grade in the first primary course, more than three times as many with poor vision as in

the first year class. Generally speaking, there are more weak-sighted girls than boys. The causes of poor vision are first those of hereditary nature; then comes trachoma, then near-sightedness of high degree, and finally physical weakness. Several classes for poor children with defective vision are to be established in Tokyo and in other great cities in the near future.

Diabetes in the Japanese

In the thirty-third general meeting of the Society of Internal Medicine of Japan, April 1, in Tokyo, Prof. Dr. Kozo Sakaguchi of the Tokyo Imperial University read a paper on glycosuria and diabetes in the Japanese. While in this country some research workers report that diabetes is on the increase, those statistics are all derived from the results of examination of patients in the larger hospitals in great cities. Generally speaking, the Japanese have a milder attack of diabetes than do Europeans or Americans. Consequently, most of the patients are unaware of their condition until they are forced to have their urine examined on account of some other sickness. Thus reports of an increase in this disease must be well analyzed before it is believed. It has much to do with the number of urine examinations, which were made less often formerly, while nowadays all practitioners make more examinations of urine. The number of insured persons was only a little over 1,000 in 1881; but they numbered more than 8,000,000 in 1932. The physical examination made on application for insurance often reveals diabetes, to the applicant's surprise. It may safely be said that diabetes in Japan is not showing a tendency to increase.

Semicentennial of Issue of Japanese Pharmacopeia

The semicentennial of the issue of the Japanese pharmacopeia was celebrated April 13 in Tokyo under the joint auspices of the Japan Pharmacology Society, the Japan Pharmaceutists Association, and the four guilds of drug manufacturers. Prof. Dr. K. Keimatsu of the Tokyo Imperial University acted as chairman.

Prizes Awarded

The Imperial Academy at a general meeting awarded its Imperial Gift for 1935 to Dr. Takaoki Sasaki, the chief of the research section of the Kyoundo Hospital, and Dr. Tomizo Yoshida, assistant professor in the Nagasaki Medical College, in recognition of their achievements in producing tumors. The Academic Prize was awarded to Prof. Dr. Masaji Tomita of the Taiwan Medical College in recognition of his researches on the metabolism of an embryo. Prof. Dr. Michizo Asano of the Nagasaki Medical College is to be given the same prize in recognition of his research on fatty acids.

Professor Mita Retires

Prof. Dr. Sadanori Mita of the Tokyo Imperial University has reached the age limit and has retired. He entered the medical college of the university as a student in 1897. Graduating with honors in 1901, he was appointed an assistant in the department of medical chemistry under the late Dr. Kumagawa. He was transferred to the department of legal medicine in 1904. In 1907 he was ordered abroad and went to Germany and France for three years. Returning home, he was awarded the highest title as a doctor, the "Igaku-Hakushi." In 1918 he was promoted to professor and held the chair of serologic chemistry; in 1924, when Dr. Katayama retired, he held the chair of legal medicine as well. For more than thirty years he devoted himself wholly to this university. He turned out more than 250 doctors under his tuition. All of the chairs in the departments of legal medicine in any medical university in this country are occupied by his followers. He is expected to go to the Taiwan Imperial University as dean. He is to be succeeded by Prof. Dr. S. Furuhata of the Kanazawa Medical College, who is one of his most prominent followers.

Marriages

PERRY SANBORN BOYNTON JR., New York, to Miss Mary Ellen Heiss of East Orange, N. J., June 13.

WILLIAM DAVIS, Elyria, Ohio, to Miss Dorothy Garrett of New York, in Crestline, Ohio, June 20.

THOMAS D. ARMSTRONG, Rochester, Minn., to Miss Isabel Foster of Shelbyville, Ill., June 4.

ROBERT E. DOWNING, Terre Haute, Ind., to Miss Mildred Pinnell of Kansas, Ill., June 10.

GUY WINSTON HORSLEY, Richmond, Va., to Miss Mary Clare Wright in Petersburg, June 10.

GURNEY TAYLOR, New York, to Miss Renée Brebion of Greenwich, Conn., June 13.

ALBERT S. BACON, Albany, Ga., to Miss Sarah McLedon of Atlanta in Griffin, June 14.

CHARLES ALLISON, Kankakee, Ill., to Miss Harriett Rossi of Braidwood, recently.

HOWARD T. WHITE, Stapleton, N. Y., to Miss Helen Marjorie Terry, June 23.

Deaths

Henry Sewall ✠ professor of medicine, emeritus, University of Colorado School of Medicine, Denver, died July 8 of coronary thrombosis with infarct and terminal cardiac rupture, aged 81. A native of Winchester, Va., Dr. Sewall received the degree of doctor of philosophy in 1879 at Johns Hopkins University, Baltimore, where he taught biology from 1876 to 1881. In 1882 he went to the University of Michigan Department of Medicine and Surgery as professor of physiology. In 1889 he received the degree of doctor of medicine from the University of Denver Medical Department and was professor of physiology from 1890 to 1908. He became professor of medicine at the University of Colorado School of Medicine in 1911 and professor emeritus in 1920. Dr. Sewall served as assistant health commissioner of Denver from 1891 to 1893 and for the next six years as secretary of the Colorado State Board of Health, and from 1915 to 1919 as a member of the National Board of Medical Examiners. He had been president of the Medical Society of the City and County of Denver (1916), the Colorado State Medical Society (1924), Denver Academy of Medicine (1903-1905), American Climatological Society (1915), Association of American Physicians (1916) and the National Tuberculosis Association (1927). In 1930 the National Tuberculosis Association presented to him the Trudeau Medal and in 1931 he received the medal awarded by the Kober Foundation through the Association of American Physicians. The University of Michigan conferred on Dr. Sewall an honorary degree of doctor of medicine in 1888 and of doctor of science in 1912; Wesleyan University conferred on him the degree of doctor of science in 1926 and the University of Colorado in 1927. He was a member of the editorial board of the *American Review of Tuberculosis* from its inception in 1917 until his death, was the author of many articles on tuberculosis, immunology and clinical medicine and from its establishment in 1919 was a member of the research advisory board and an active investigator in the research department of the National Jewish Hospital, Denver.

Alden Humphrey Williams, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; fellow of the American College of Physicians; member and past president of the Radiological Society of North America; past president of the Kent County Medical Society; member of the staff of the Blodgett Memorial Hospital and Butterworth Hospital; aged 58; died, June 10, of coronary occlusion.

John Monroe Sigman, Macon, Ga.; University of Georgia Medical Department, Augusta, 1904; member of the Medical Association of Georgia; served during the World War; for many years a national guard officer; on the staff of the Macon Hospital; aged 55; died, April 10, in the Veterans' Administration Facility, Atlanta, of an infection of the leg complicating diabetes mellitus.

Harry Montrose Slade, Reisterstown, Md.; University of Maryland School of Medicine, Baltimore, 1884; member of the Medical and Chirurgical Faculty of Maryland; county health officer from 1912 to 1924; district health officer from 1901 to 1926; aged 74; died, April 15, in the Maryland General Hospital, Baltimore, of arteriosclerotic heart disease.

Walter Klingeman Long ✠ Hampton, Iowa; Northwestern University Medical School, Chicago, 1906; formerly secretary of the Franklin County Medical Society; served during the World War; director of the laboratory and x-ray department of the Lutheran Hospital; aged 60; died, April 3, of pneumonia and abscess of the liver.

Edwin Clyde Morgan ✠ Clay Center, Kan.; Northwestern University Medical School, Chicago, 1910; formerly secretary of the Clay County Medical Society; member of the Kansas Board of Registration and Examination; served during the World War; aged 51; died, April 27, of chronic myocarditis and nephritis.

David Hirst Mills ✠ Oneonta, N. Y.; University and Bellevue Hospital Medical College, New York, 1911; past president of the Otsego County Medical Society; served during the World War; on the staff of the Aurelia Osborn Fox Memorial Hospital; aged 50; died, April 15, of coronary embolism and acute tonsillitis.

William Turner Van Pelt ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1885; served during the World War; aged 71; formerly on the staffs of the Episcopal Hospital, Wills Hospital and St. Joseph's Hospital; member of the board of managers of the Chestnut Hill Hospital, where he died, April 26, of heart disease.

Andrew James McGraw, Taunton, Mass.; College of Physicians and Surgeons, Baltimore, 1906; member of the Massachusetts Medical Society; for many years mayor of Taunton; for twelve years a member of the school committee; served during the World War; aged 54; died, April 20.

Edwin Seymour Miller, Flagstaff, Ariz.; University of Buffalo School of Medicine, 1879; served for a time as county health officer and as head of the city municipal health department; for many years local surgeon for the Atchison, Topeka and Santa Fe Railroad; aged 78; died, April 29.

Albert Edwin White, Houston, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1908; member of the State Medical Association of Texas; served during the World War; aged 54; died, April 12, in St. Joseph's Infirmary, of cerebral thrombosis.

S. T. D. Lancaster, Spartanburg, S. C.; Medical College of South Carolina, Charleston, 1879; member of the South Carolina Medical Association; for many years a member of the state legislature; aged 78; died, April 27, in the Mary Black Hospital, of pneumonia.

Charles Henry Lefcoe, Philadelphia; Jefferson Medical College of Philadelphia, 1897; at one time associate in pediatrics, and instructor and demonstrator in clinical medicine at his alma mater; aged 60; died, April 4, of coronary thrombosis and pulmonary edema.

William Homan Roe ✠ Patchogue, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894; for many years health officer of the town of Brookhaven; aged 65; died, April 14, of arteriosclerosis and heart disease.

John Patrick Lenahan, Bellows Falls, Vt.; University of Vermont College of Medicine, Burlington, 1902; member of the Vermont State Medical Society; member of the school board; aged 58; died, April 2, of complications following an operation for appendicitis.

William E. Washburn, Kewanee, Ill.; Hospital College of Medicine, Louisville, Ky., 1899; member of the Illinois State Medical Society; aged 65; on the staffs of St. Francis Hospital and the Kewanee Public Hospital, where he died, April 27, of pneumonia.

James Holland McCorkle, Gordon, Texas; University of Tennessee Medical Department, Nashville, 1880; member of the State Medical Association of Texas; past president of the Palo Pinto County Medical Society; aged 80; died, April 17, of pneumonia.

John Calhoun Marshall, Checotah, Okla.; Medico-Chirurgical College of Kansas City, Mo., 1904; member of the Oklahoma State Medical Association; past president of the McIntosh County Medical Society; aged 52; died, April 11, of chronic nephritis.

Charles Storer Knight, Portland, Me.; Harvard University Medical School, Boston, 1896; member of the Maine Medical Association; on the staff of St. Barnabas Hospital and the Farrington Hospital; aged 63; died, April 12, of cancer of the stomach.

John Bates Lyon, River Forest, Ill.; Rush Medical College, Chicago, 1901; on the staff of the Garfield Park Hospital, Chicago; formerly on the staff of the Oak Park (Ill.) Hospital; aged 56; died, April 24, of carcinoma of the lungs and of the cheek.

George Walter Lewis, Belle Vernon, Pa.; Jefferson Medical College of Philadelphia, 1917; served during the World War; aged 42; died, April 2, in the McKeesport (Pa.) Hospital of sinus infection, otitis media and rheumatic fever.

George U. Lipshulch, Oak Park, Ill.; National Medical University, Chicago, 1906; served during the World War; formerly member of the state legislature; aged 55; died suddenly, April 7, in Chicago, of coronary thrombosis.

Robert Lee McWhorter, Gaylesville, Ala.; Medical College of Alabama, Mobile, 1887; member of the Medical Association of the State of Alabama; aged 71; died, April 5, in a hospital at Rome, Ga., of bronchopneumonia.

Edward Johnson Logan ✠ Providence, R. I.; Jefferson Medical College of Philadelphia, 1903; on the staffs of St. Joseph's and Homeopathic hospitals; aged 67; died, April 8, of chronic myocarditis and chronic nephritis.

Adalbert Alexander Vass ✠ Richmond Hill, N. Y.; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1912; on the staff of the Wickersham Hospital, New York; aged 47; died, April 26.

Michael Joseph Maguire ✠ Yakima, Wash.; St. Louis University School of Medicine, 1913; aged 52; died, April 13, in St. Vincent's Hospital, Portland, Ore., of bronchial asthma, pulmonary edema and cardiac dilatation.

Franklin A. Marsh, Alameda, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1889; member of the Idaho State Medical Association; aged 79; died, April 1, of uremia and arteriosclerosis.

John Stanilaus Kelly, Quincy, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1921; aged 49; died, April 20, in the City Hospital, Boston, of injuries received when he was struck by an automobile.

John A. McLeod, Brooklyn; Long Island College Hospital, Brooklyn, 1889; member of the Medical Society of the State of New York; aged 76; died, April 7, in the Long Island College Hospital, of heart disease.

James Matthias Kibler, Newberry, S. C.; University of Maryland School of Medicine, Baltimore, 1886; member of the South Carolina Medical Association; aged 76; died, April 19, of chronic nephritis.

William Thomas Sellers, Mobile, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1933; aged 26; died, April 27, in the United States Naval Hospital, Pensacola, Fla., of pneumonia.

George Philip Shirmer, Mount Vernon, N. Y.; Bellevue Hospital Medical College, 1873; aged 83; died, April 10, in the Mount Vernon Hospital, of injuries received when he was struck by an automobile.

Moses Joseph Konikow, Brookline, Mass.; Universität Bern Medizinische Fakultät, Bern, Switzerland, 1893; member of the Massachusetts Medical Society; aged 68; hanged himself, April 26.

Francis Cassat Warne, Chicago; Northwestern University Medical School, Chicago, 1893; formerly a surgeon for the Illinois Central Railroad; aged 77; died, April 18, of cerebral hemorrhage.

George McCulloch, Humeston, Iowa; Rush Medical College, Chicago, 1873; formerly member of the state legislature; for many years bank president; aged 87; died, April 12, of pneumonia.

Charles Louis McEveety, New York; Long Island College Hospital, Brooklyn, 1909; aged 49; formerly roentgenologist at the Union Hospital, where he died, April 22, of pneumonia.

William W. Mitchell, Greenfield, Tenn.; University of Tennessee Medical Department, Nashville, 1898; aged 73; died, April 1, at the Methodist Hospital, Memphis, of Parkinson's disease.

Edward Mark Russell, Springfield, Mass.; McGill University Faculty of Medicine, Montreal, Que., 1901; aged 67; died, April 21, in the Mercy Hospital, of acute appendicitis.

Stephen McReynolds, Terrell, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1884; aged 76; died suddenly, April 10, of coronary thrombosis.

Julius Wesselowski ✠ Jewell, Kan.; University Medical College of Kansas City, Mo., 1885; aged 78; died, April 17, of coronary occlusion.

Correspondence

DISLOCATIONS OF KNEE JOINT

To the Editor:—Under Correspondence in THE JOURNAL, May 9, page 1679, we note the comments of Dr. Fichman on our article entitled "Dislocations of the Knee Joint" (THE JOURNAL, April 11, p. 1252).

Dr. Fichman states that our statement that "the records of many large hospitals failed to show a single case of a complete dislocation of the knee" is not in accord with the surgical literature. In answer to this we quote from Dr. Fichman's own article on "Dislocations of the Knee Joint" (THE JOURNAL, Oct. 5, 1935, p. 1111), wherein he quoted the following: "Dr. Ritter failed to find a single case of a dislocated knee among 23,000 accident cases at the Reconstruction Hospital." In an extensive review of the literature on dislocations of the knee we find that many articles begin with the statement as to the rarity of this condition. It was not our entire purpose to assume that we were reporting an unusual condition when we reported this case of a complete lateral dislocation of the knee but to emphasize certain important procedures in the postoperative care.

We are sure Dr. Fichman did not intend to leave one with the impression that the procedure of reduction which he used was original, because such procedure, to our knowledge, has been used for many years. Besides, our patient was admitted to the hospital and reduction done Nov. 1, 1934, over two months before Dr. Fichman's case was first seen by him.

Our treatment was different from Dr. Fichman's as regards immobilization. We applied a hip spica for six weeks while in Dr. Fichman's case immobilization was done only in a posterior splint for ten days, when it was removed at intervals for active motion. Functional improvement in our case has taken place since the publication of our article, especially flexion of the leg at the knee. We want to congratulate Dr. Fichman on his patient's excellent functional results.

We wish to emphasize again that having a photograph of our patient before reduction was unique. We have not, as stated in our article, found in the literature a photograph of a lateral displacement of the knee joint previous to reduction. It is not out of the ordinary that the roentgenogram in our case should be similar to Dr. Fichman's because most complete lateral dislocations of the knee joint, as well as all other complete dislocations of the knee joint, have marked similarity, so far as x-ray observations are concerned.

Owing to the fact that space prevented the full publication of our bibliography in THE JOURNAL it was unfortunate that Dr. Fichman's article was not referred to. Reference to his report does appear in the reprints of our article, however.

H. EARLE CONWELL, M.D.
R. H. ALLDREDGE, M.D.
Employees Hospital, Fairfield, Ala.

EXPERT GARGLING

To the Editor:—Gargling with colored fluids, as suggested by Dr. Walker of England in THE JOURNAL, June 27, page 2253, will readily prove that, to gargle well, the person should first swallow the fluid he is about to gargle with the mouth wide open, head well back, and then gargle it around as is the usual practice, as long as his breath will permit; he can reach thus the entire posterior pharyngeal surfaces. If his mouth is wide open when he swallows, the fluid cannot go down below the pharynx. If it does, the mouth must have closed in some way. Furthermore, if the gargler while letting the air bubble up through the fluids in his throat, making that melodious sound of a babbling brook in a great hurry, will allow the air to go through his nose instead of his wide open mouth, and at the same time nod his head forward as he spits the fluid out, some of the fluid will readily come out through the nose. Thus he will reach mouth, pharynx, nasopharynx and accessible parts of the nose, all by one comprehensive act.

HENRY L. SWAIN, M.D., New Haven, Conn.

AIR-TIGHT JOINT IN ANESTHETIC MASK

To the Editor:—Anesthetists who use Dr. Ralph Waters' closed soda lime absorption technic have been plagued by the tendency of most masks to leak between the rubber rim and the body as soon as slight stretching of the rubber has occurred. I have tried various things to achieve an air-tight joint, from sections of inner tubing to folded adhesive tape. The latter is the most successful but has obvious disadvantages. A device more sanitary and almost as effective is a couple of curved half inch strips of blotting paper slipped between the rubber rim and the celluloid or metal body, and moistened with water.

MARGARET F. BENJAMIN, M.D., Muncie, Ind.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DERMATITIS IN BANANA INDUSTRY

To the Editor:—Can you give me any information regarding a dermatitis in individuals who are handling bananas, caused by contact either with the outer skin or the juices or the combination of these factors?

HARRY L. BAER, M.D., Pittsburgh.

ANSWER.—A contact dermatitis from the uncontaminated pulp of the banana almost invariably is of allergic nature. The sensitizing agent leading to the allergic dermatitis may be different in the skin and in the pulp. Allergic manifestations from fruit are preeminently related to the skin. Patch tests with small portions of the banana pulp or the banana peel may be applied to establish the actuality of an allergic state.

Bananas are likely to harbor various forms of fungi. During the period of growth, various insecticides and disinfectants may be applied to the banana tree. Arsenical mixtures are in some use, as are also phenolic solutions. Conceivably the presence of such agents might account for a contact dermatitis when the skin of the worker touches the banana stalk or rinds. At the present time various gases are being used for the artificial ripening of bananas. There is no proof that these gases or vapors are productive of any skin diseases, but the possibility exists. One cause of dermatitis among banana handlers is the coarse twine made of jute, used for hanging the banana bunch. A jute dermatitis is a well known minor disease entity.

In the case of almost all fruit handling on a commercial scale, industrial skin diseases may arise. This fact has given rise to the general term "fruit dermatitis." This term embraces a number of unrelated types of the skin disorders, some from yeasts and fungi, others from germicides and insecticides, and still others from waxes sometimes utilized in the preservation of natural fruits. Mention is now made of two reported occurrences of fruit dermatitis. Mackay and Ireland (Investigation into the Fruit Industry: Health Bulletin, Victoria, Australia, July-September 1928, p. 481; abst. *J. Indust. Hyg.* **11**:164, 1929) have found that various forms of skin diseases exist among the handlers of peaches, lemons and crystallized fruits. Kingery and Thienes (Mycotic Paronychia and Dermatitis, *Arch. Dermat. & Syph.* **11**:186 [Feb.] 1925), in investigating an epidemic of fruit dermatitis, encountered yeasts which when cultured led to a similar dermatitis when applied to the skin of animals and nonexposed workers. These authors concluded that at least certain forms of fruit dermatitis may be classed as dermatomycoses.

TREATMENT OF ACROMEGALY

To the Editor:—Please give me any information you have on the present treatment of acromegaly. The patient in question is approximately 50 years old. The roentgenogram of the sella was negative and there were no changes in the visual fields. The main indication of change in the pituitary gland is exhibited in the change in the form and size of the extremities and the facial expression. The metabolic rate was —3. The general physical condition was negative except for some enlargement of the inguinal glands. The blood pressure was 130 systolic, 100 diastolic. The patient was operated on at another institution for anal contraction, anal abscess and a fistula. From the latter operation he had apparently entirely recovered. Before coming to me he had amniotin injections, which he thought gave him results for a time, but he has discontinued this treatment because he is positive that it is not doing him good any longer. After coming to me, his main symptom has been severe headaches, occurring at forty-eight hour intervals, coming on in the middle of the night or early in the morning and lasting until about noon. He also has been unable to sleep except for a few hours early in the morning. He has been nervous and fearful of the outlook. He has been told that if this disease is not arrested he will become blind. He has been advised at the hospital where he had the first examination and the rectal operation to return to that institution for a course of roentgen treatments. I have been able to reduce the patient's headache from forty-eight to ninety-six hour intervals, and he has been sleeping better. What information can you give me on the possible success of a course of roentgen treatments? If you have any information of value can you tell me what dosage and at what intervals treatment is given? Have you any other suggestions as to treatment in this case? Please omit name.

M.D., Illinois.

ANSWER.—The treatment of acromegaly is still in its empirical phase, the object of which is to decrease the amount of pituitary secretion. This disease is often associated with other glandular disturbances, and for this reason a number of glandular extracts, such as thyroid and estrogenic preparations, have been administered for the specific purpose of reducing the activity of the pituitary gland. Unfortunately, no specific therapy has yet been determined. In some instances high-voltage roentgen therapy has been effective in controlling the symptoms; in other instances the patient has been subjected to a craniotomy and an intracapsular enucleation of the pituitary with the implantation of radon seeds into the capsule. The latter procedure has been most effective in controlling the growth of the anterior lobe and bringing about a cessation of symptoms. The intracranial approach is a major procedure and is rarely resorted to unless visual disturbances occur, and then, by all means, an intracapsular enucleation should be employed in conjunction with the insertion of radon seeds.

FATIGUE AND BASAL METABOLIC RATE

To the Editor:—I have a patient who manifests extreme fatigue. The only positive manifestation is a basal metabolic rate of — 20. There are no physical evidences of myxedema; outside of a slight fulness of the thyroid, the physical examination and x-ray studies are essentially negative. Please discuss possibilities. Omit name. M.D., New York.

ANSWER.—In the majority of cases in which there is a deviation from the normal of the basal metabolic rate, the thyroid gland is at fault. A rate as low as 20 per cent below normal is probably significant. A variation of 10 or 15 per cent above or below is usually considered the normal range. It may be that there is less normal variation below than above. The clinical symptoms and a careful evaluation of all the facts are necessary for diagnosis. The basal metabolic rate, while an important guide, is not of itself diagnostic and can be considered only in conjunction with other evidences of disorder.

Fatigue is a common complaint in hypothyroidism. In mild cases there may be no other finding than a depressed basal metabolism. In fact, many of the clinical symptoms are dependent on impaired heat production. Myxedema as a fully developed syndrome may not be present. Dry skin and hair, poor tolerance of cold, and tolerance of heat are significant. The patient is not comfortable at room temperatures that are not too low for other members of the family. The pulse is usually slow. These people tend to be sluggish both mentally and physically, but often the condition has continued for long periods and they are not conscious of their condition. These symptoms may not be present. Some thin individuals with low metabolism and fatigue have accelerated heart rates and yet improve on thyroid therapy. These cases may not actually be primary thyroid disorders even though they respond to thyroid administration.

In the case described, the therapeutic result of carefully observed thyroid administration might be the final diagnostic criterion.

Other glandular disorders must be considered. Simmonds' disease (pituitary cachexia) is characterized by low basal metabolism in addition to weakness, weight loss, dry skin, alopecia and aged appearance. Early in the course of the disease, these symptoms may not be fully developed. The advanced case of Addison's disease is easily identified, but early atypical examples may show only weakness, weight loss, hypotension and low metabolic rate.

That low basal metabolism is usual in inanition as well as in actual starvation cannot be doubted. This was amply demonstrated in central Europe during the World War and has been shown in famine studies elsewhere. Wasting, debilitating nonfebrile diseases may show variations both above and below normal. In diabetes the rate is more often moderately depressed than elevated, except in acidosis.

It has been suggested that neurosis and anxiety states may present both fatigue and low metabolism, and even that fatigue resulting from overwork or insufficient sleep may lower the basal energy production.

SENSITIVITY TO ARSPHENAMINE

To the Editor:—What can be used in the place of neoarsphenamine in a patient who has become sensitized to the drug? The reaction consists of prostration, fever, sweating, nausea and vomiting following within fifteen minutes to a half hour after administration. Care has been taken to use only double distilled water in sterile ampules, to use the solution immediately and to inject it slowly. Several different batches of the drug have been tried but all with the same result. The patient is a girl, aged 19 years, weighing about 120 pounds (54 Kg.). She presented herself for treatment at the appearance of a secondary rash. She also had alternate courses of bismuth solution in olive oil (twelve injections of 1 cc. intramuscularly) and 0.45 Gm. of neoarsphenamine (6, 10 cc. of water). She had had about eighteen injections of neoarsphenamine when the trouble developed—in other words, three courses of the drug given at five day intervals. The drug was withdrawn immediately and she was kept on the bismuth preparation for an interval of six weeks, after which three injections have been attempted but always with the same result. At present she shows no evidence that she has become "saturated" with the drug bismuth, there being no evidence of a deposit in the mucous membranes and no urinary manifestations to indicate renal damage. Please advise. Kindly omit name. M.D., Minnesota.

ANSWER.—Some patients develop a definite intolerance for the type of arsphenamine they are receiving, so that by changing to another type the course may be completed satisfactorily. When patients become reactive to neoarsphenamine, the use of arsphenamine given slowly and well diluted may be well tolerated. Also the use of one of the brands of arsphenamine for intramuscular use might be tried. The danger of argyria from silver arsphenamine preparations is great enough to interdict its use. Occasionally by using a neoarsphenamine made by a different manufacturer, reactions of the type described can be avoided. The use of dextrose either by vein or by mouth previous to the injection may prevent such reactions, which must be looked on as forewarnings of intolerance to the drug, which may increase with each injection. If the patient is found to be reactive to several of the various types and brands of arsphenamine, it is then necessary to limit subsequent treatment to a bismuth or mercurial preparation.

USE OF DEXTROSE INTRAVENOUSLY IN SHOCK

To the Editor:—I have noticed repeatedly drops in blood pressure following intravenous injections of dextrose. I know, of course, that the percentage of the solution figures in this drop. I should like to have information concerning the treatment especially of shock with dextrose; in other words, the effect of intravenous dextrose on blood pressure according to solutions of various percentages; also whether or not it is advisable in the treatment of shock, especially traumatic and postoperative shock. What other solution is preferable? What are the contraindications to the use of dextrose? Is it adyisable to use insulin with dextrose regularly?

J. E. STANFILL, M.D., Jenkins, Ky.

ANSWER.—Whether a rise or a fall in blood pressure will occur following intravenous injection of dextrose depends on a number of factors. In the first place, excessively rapid injection of the solution produces what has been called speed shock (Hyman and Hirshfeld, THE JOURNAL, Feb. 4, 1933, p. 305). When dextrose is given at the proper rate, literally drop by drop, this form of unfavorable reaction is prevented. When it is given by "drip phleboclysis," the effect on the blood pressure is entirely dependent on the progress of the patient's condition rather than on the treatment. Aside from supplying water and sodium chloride—the latter is important and should be provided in the solution—during a state when there is a drain on the system without chance for replenishment through the ordinary channels, the dextrose may antagonize starvation acidosis, and that is all the good dextrose-saline solution can do in shock. As this is therefore merely a matter of replacement of nutritional essentials, it has no place in the early treatment of shock. Indeed, this irksome procedure may aggravate the condition by its psychic trauma. When blood has been lost, it may be of detriment rather than of advantage, as it is likely to lower still further the percentage of corpuscles in the circu-

lating blood. This is one of the reasons why blood transfusion is so much more important in the treatment of shock, especially that following hemorrhage, than the infusion of any other kind of fluid. When there has been a great loss of salt from the system, as by excessive emesis, hypertonic (10 per cent) sodium chloride solution may be the most important emergency remedy. Hypertonic dextrose solution should be avoided, as it causes crenation and possible destruction of blood corpuscles when none can be spared; and it will still further increase the existing state of hypohydration of the tissues. The employment of 7 per cent acacia solution in shock is still *sub judice*. It has not made a place for itself in spite of recommendation by high authorities. One should therefore employ drip phleboclysis, using equal parts of 5 per cent dextrose and 0.9 per cent sodium chloride solution, as the first offering of diet to a patient who is emerging from shock and who is presumably or actually in such a condition that he is not likely to benefit from the ingestion of fluid by mouth. Excepting in a case of diabetes mellitus, insulin should be employed only when sugar appears in the urine of a patient who is given dextrose phleboclysis and then only in guarded dosage to make hypoglycemia impossible.

INDUSTRIAL HAZARD OF COPPER PLATING

To the Editor:—I have a patient who is employed in electroplating copper. After the plating, the copper is dipped in a solution of two parts of sulfuric and one part of nitric acid. He has been doing the work for three months, exposed to the fumes of sulfur dioxide and nitrogen peroxide, which occur following the dipping process. For the past ten days he has had nosebleeds and complains of a marked loss of appetite and energy. The patient has a marked pallor of face and moderate pallor of the conjunctivae and of the mucous membranes of the mouth. There are two ulcers on each side of the nasal septum. The blood count is red blood cells 3,100,000, hemoglobin 60 per cent, white blood cells 9,200, polymorphonuclears 74 per cent, lymphocytes 26 per cent. Will you kindly explain the action of these vapors and treatment of the condition? I would also be interested in literature on industrial hazards in copper plating following this dipping process. Kindly omit name.

M.D., New York.

ANSWER.—Granting that this condition is the result of exposure in electroplating and is not the result of extraneous causes, it is at once to be recognized that the atmosphere of a plating room may represent a complex mixture of gases, vapors and mists. Rarely is it true that only one type of plating is carried out in any given plant. Simultaneously plating operations may include nickel, cadmium, chromium, copper and, rarely, lead and zinc. In the preparation stage of the metal various acids, alkalis and cyanides may find application. Furthermore, both the metals and pickling agents may contain impurities. A diagnosis of "mixed intoxication" becomes warranted at times in this industry. Conceivably arsenic may be present, which in combination with the hydrogen produced in the plating process may lead to arseniureted hydrogen, whereupon an anemia may arise as part of the general chronic arsenic poisoning. It is more likely that the anemia may be traced to the action of acids and alkalis together with heterogeneous agents on the teeth, the alimentary tract and the mucous membranes in general. This may eventuate in damaged teeth, respiratory disease and digestive disturbances, to the end that a secondary anemia may appear.

The ulceration of the nasal membranes and the nosebleed are ready results from almost any severe exposure to acid or alkali vapors. Sulfur dioxide on contact with the membranes quickly is changed to sulfurous or sulfuric acid, and the oxides of nitrogen thus may become nitrous or nitric acid. Ulceration from cyanogen compounds also occurs.

The problem of control of the abnormal states caused by such hazards chiefly is one of eliminating the exposure. Palliative treatment is almost worthless so long as exposure is perpetuated. Exhaust systems with lateral intakes at the edges of plating and pickling tanks are highly regarded for protective purposes in plating plants. In some instances special metals may be required in the building of exhaust systems, since the life of ordinary sheet metal may be short when exposed to various alkalis and acids.

If further physical examination of the patient leads to suspicion that arsenic may be the guilty agent, appropriate steps should be taken to prove the presence of arsenic in the workroom atmosphere or as an impurity of some used material.

Extensive information on the hazards of plating may be found in the following standard publications:

International Labor Office: Occupation and Health, Geneva, 1930.
Hamilton, Alice: Industrial Poisons in the United States, New York, Macmillan Company, 1929.
Hamilton, Alice: Industrial Toxicology, New York, Harper & Brothers, 1934.
Kober, G. M., and Hayhurst, E. R.: Industrial Health, Philadelphia, P. Blakiston's Sons and Co., 1924.

CONSTIPATION IN INFANCY

To the Editor:—A child, aged 22 months, weighing 28 pounds (13 Kg.) and measuring 34 inches (86 cm.), has been having periodic digestive upsets ever since the eruption of his teeth when he was 5 months old. He has sixteen teeth now. He was a full term baby, in persistent occipitoposterior presentation, delivered with the aid of low forceps. He was bottle fed, of which he was weaned at eight months. His weight at 1 year was 24 pounds (11 Kg.) and at birth was 7 pounds 10 ounces (3.5 Kg.). He was fed orange juice after he was 4 weeks of age and every effort of giving him cod liver oil or viosterol would upset him. The bowel movements would become loose and green, with some mucus and a very foul odor. Often they would be constipated. Stool examinations were negative for blood or worms. He has been getting ultraviolet and natural sunlight treatment, but still shows very slight traces of rickets. At 6 months cereals were introduced and later eggs, vegetables, fruits and meats. His stool has not been normal for months, but in the last four weeks he has shown definite anorexia, belches often, does not vomit and suffers from constipation. The stool is especially foul and at times is black; it is well formed and often consists of fecal masses the size of hazelnuts. I have stopped the eggs and meats completely, have limited vegetables to potatoes, and have prescribed milk, cereals and bread, and have found him showing definite improvement. However, after two weeks, when the eggs and the meats were reintroduced, the old condition returned. The child otherwise is mentally and physically well and has not had any other illness. I will appreciate your advice in this stubborn and discouraging case of chronic digestive disturbance. I would add that several good pediatricians have seen the patient with me. Their advice did not materially alter the treatment and all expressed the opinion that the child would outgrow the condition. Please omit name.

M.D., New York.

ANSWER.—Constipation is noted as the chief disturbing factor in this case. Certain dietary changes may aid in overcoming the difficulty. If the foods are still being finely strained, it might be advisable to resort to a coarser diet. If the quantity of milk in the diet is excessive, the amount should be reduced, and pulpy fruits and more bulky vegetables should be given. The addition of carbohydrates in the form of molasses, honey and jelly will increase fermentation and aid peristalsis. Coarser cereals, bran and whole wheat bread are advised. Plenty of water should be offered between meals. Agar-agar, an indigestible carbohydrate obtained from seaweed, has the ability to absorb large amounts of water and forms a bulky mass in the intestinal tract, thus stimulating peristaltic movements. Cathartics are habit forming and contraindicated. At 22 months the child should be trained in regular habits of evacuation. With proper instruction he should be taught the habit of going to stool and the correct muscular coordination for proper evacuation. If a proper dietary regimen and adequate habit training do not alleviate the constipation, obstructive causes should be sought for and eliminated.

RELATION OF HEART LESION TO TONSILLECTOMY

To the Editor:—I recently saw a 9 year old girl with a mitral valve lesion due to rheumatic fever and a septicemia. The father of the girl said that doctors had attributed her valve lesion to having a tonsillectomy at 4 years of age. I know that one does not take tonsils out before the age of 6 usually, but is there any evidence that tonsillectomy alone will cause a heart lesion? I have a boy at present, 5 years of age, who cannot eat solid foods and can hardly breathe. I intended to take his tonsils out next month, but the boy's father overheard our conversation. Would you kindly give me the indications for tonsillectomy in youngsters under 6? Please do not publish my name.

M.D., Michigan.

ANSWER.—Tonsillar infections may and perhaps often do cause infections of other parts of the body, such as the joints and the endocardium, but it is inconceivable how the removal of tonsils as such could cause a heart lesion. Perhaps in many instances involvement of the heart and other structures is present in cases of chronic tonsillitis, but attention is called to the lesion after the tonsils have been removed, and then erroneously the condition found may be ascribed to tonsillectomy though the operation itself was not the cause. There are no definite age limits at which tonsillectomy may be done. It is a question of clinical history which is the deciding factor. If there is sufficient evidence of infection in the tonsils causing injury to the patient, the tonsils may be removed when the child is even only 12, 15 or 18 months of age. On the other hand, indications for tonsillectomy are usually present in the majority of cases during the ages of 3 to 8 or 10 years, but no definite time limit can be set, and indication for operation is governed by the signs and symptoms in each individual instance. There are many indications for tonsillectomy, such as repeated attacks of tonsillitis, particularly with the attacks becoming more frequent or more severe as time goes on, such marked hypertrophy as to interfere seriously with breathing or swallowing, definite and repeated involvement of the regional cervical lymph glands with acute exacerbations, definite signs of focal infection in the kidneys, heart and so on coincident with or following the attacks of acute tonsillitis, tumors of the tonsils, interference with proper speech by large tonsils, or a long standing reflex cough

due to submerged tonsils in which all other possible causes for a cough have been eliminated. The presence of caseous plugs in the crypts causing fetor ex ore or giving rise to a bad taste serves as an indication for tonsillectomy.

USE OF CORBUS-FERRY FILTRATE IN GONORRHEA

To the Editor:—Two years ago a married man, aged 31, came to me with an acute gonorrheal urethritis. The infection remained in the anterior urethra throughout the treatment, which consisted of the usual instillations of mild antiseptic solutions and some of the commonly used urinary antiseptics by mouth. After about eight weeks the infection cleared up completely, as evidenced by negative smears after prostatic massage and the introduction of sounds. In December 1935 the patient again appeared with an anterior urethritis, which on examination and smear proved to be a recent gonorrheal infection. Having read the very favorable literature regarding the latest treatment of gonorrhea with gonococcus filtrate, I persuaded the patient to have me use this new method in the treatment of his infection this time. On about the fifth day of the appearance of the discharge, I gave him the first injection of gonococcus filtrate, 0.05 cc. intradermally. There was a skin reaction about 1½ inches in diameter. A few days after the injection a positive urethritis also was present. December 31 he received a second injection, 0.075 cc., with a reaction 2 inches in diameter. Jan. 7, 1936, he received a third injection of 0.1 cc., with a 3 inch reaction. During this time I had also been using the mild instillations just as I had the first time he had gonorrhea. January 12 he became ill with a temperature of 101 and was ordered to bed. The next day an acute prostatitis was discovered. January 18, while still in bed, he developed an acute epididymitis of the left testicle. Conservative treatment was used and he went to work January 27, feeling much better although the left testicle was still swollen. From then on the urine started clearing and the discharge diminished. February 5 a fourth injection of gonococcus filtrate was given (only 0.05 cc.) with a resultant reaction 3 inches in diameter. Today he appeared in my office with an acute epididymitis of the right testicle. He feels strongly (as do I reluctantly) that the gonococcus filtrate has given him all this trouble at this infectious period. I wonder if there have been others who have had the same experience. I know that I have followed the technic carefully. I am going to be more watchful henceforth of the adage, "Be not the first by whom the new is tried, nor yet the last to lay the old aside" in medical practice. But this has been a rather sad experience for both my patient and myself. If this should be printed, please omit my name.

M.D., Illinois.

ANSWER.—Despite the enthusiastic reports of a few urologists and the impossible claims of the manufacturer's representatives, the experiences of this patient are not unique. The most striking published report of grief from the use of Corbus-Ferry gonococcus filtrate is to be found in an article by Dr. H. M. Spence in the *Oklahoma State Medical Association Journal* (**28**:442 [Dec.] 1935; abstr. THE JOURNAL, February 8, p. 498). A recent survey of a number of urologists regarding their opinions of it based on actual trial showed that, with but few exceptions, its use had been discontinued either because of lack of therapeutic results or the too common precipitation of serious complications following its administration.

TREATMENT OF PINWORM INFESTATION

To the Editor:—I have been consulted by a woman, aged 29, who has been infested with pinworms (Oxyuris vermicularis) for the last four years. During this time she has taken treatment for the condition more or less constantly and has been prescribed for by at least half a dozen physicians. A careful check up on prescriptions given her show that she has taken every vermifuge recommended for the condition at least once; but even so she continues to pass one or two worms at a time at frequent intervals. The diagnosis has been confirmed by microscopic examination, which shows typical male and female worms and ova. Proctoscopic examination is essentially negative. Vaginal examination is negative. The patient has been told about the usual method of reinfestation and has almost developed a phobia for the condition and washes her hands continually in bichloride solution. No other member of the family shows any evidence of infestation. During the past four years the patient has lived in three states and numerous communities, which I believe proves that she is carrying her own source of reinfestation. Any further suggestions as to treatment will be appreciated. Please omit name.

M.D., Kansas.

ANSWER.—The relative futility of "washing hands continually in mercury bichloride solution" and the proper hygiene for such cases is so well brought out in Harry Beckman's "Treatment in General Practice" (Philadelphia, W. B. Saunders Company, 1934) that one can do no better than to quote verbatim:

"The length of the life cycle of Oxyuris, from the time the eggs are ingested to the time the females crawl out of the anal opening, is a little more than two weeks. If, therefore, the conveyance of eggs from anus to mouth by contaminated fingers can be absolutely prevented for a period of two to three weeks, the infestation will be cured. This apparently simple feat is extremely difficult of accomplishment. The treatment should begin with a full bath with soap and water, special attention being paid to the anal region. After this the anal region and perineum are to be anointed with an ointment composed of 2 per cent of ammoniated mercury in equal parts of lanolin and petrolatum, a pad of cotton applied, and the child clothed in heavy drawers that are closed front and back. After each defecation the anal region is to be thoroughly washed with soap and water, the ointment and a fresh pad applied, and the drawers put on again. At night, when the itching is at its worst, the following anesthetic preparation may be substituted for the mercury ointment.

	Gm. or Cc.	
℞ Ethyl aminobenzoate (benzocaine)	3.0	gr.xlv
Salicylic acid	0.78	gr.xij
Hydrous wool fat (lanolin)	15.0	℥ss
Petrolatum, to make	30.0	℥I

Label: Apply as directed.

"It may be necessary to tie the hands, especially at night, so that they cannot be carried to the site of itching. In any case, the cleansing of the hands is of the utmost importance since ordinary washing will not suffice to rid them of the eggs. They must be thoroughly and frequently scrubbed with brush, soap and water, and the nails kept scrupulously clean. Daily full baths are desirable. If several children are closely associated, all must be simultaneously treated else mutual reinfection will be certain to take place. Bed sheets should be boiled at least twice weekly."

Internal and rectal treatments are secondary in importance to this regimen.

ANEMIA IN BLOOD DONORS

To the Editor:—I have under my care a white man, aged 26, weighing 150 pounds (68 Kg.), giving a history suggestive of gastric ulcer. The history reveals the astonishing information that the patient has served as a blood donor in one of our larger university hospitals for the past thirteen months. During this period he has given blood for twenty-two transfusions, averaging 250 cc. to a transfusion. 1. What is the total volume of blood normally present in a 150 pound white man? 2. What is the weight of the blood in such a person? 3. What is the possible etiologic factor in the gastric ulcer? 4. What possible damage might result from repeatedly acting as a donor in so short a time? Please omit name.

M.D., New York.

ANSWER.—1. According to the usual methods of calculation, the total volume of blood in a healthy man weighing 150 pounds (roughly 70 Kg.), would be from 3,500 to 5,400 cc. There is reason to believe that the blood volume would probably remain fairly constant after repeated bleeding of say 250 cc. at intervals of about two weeks.

2. The weight of the blood in such a person according to current concepts would be from 3.5 to 4.9 Kg., which would be the equivalent of from 3,500 to 4,900 cc. in volume, as the average specific gravity of human blood is about 1.055.

3. On general principles it cannot be questioned that the debility following loss of blood may favor the development as well as the recurrence of gastric and other ulcers.

4. Experience indicates that there would be danger of grave secondary anemia from the loss of 250 cc. of blood about every two weeks for a period of thirteen months.

ERYSIPELOID

To the Editor:—I am a physician for a rendering plant where dead horses, cows and other animals are handled. Employees have an inflammatory condition usually of the hands and I am at a loss to make a proper diagnosis. The condition comes about often by the entrance of some organism through the slightest scratch of the skin. It appears somewhat like erysipelas and seldom suppurates. It generally runs a course of about three weeks. I hope that you will be able to suggest the various possibilities as to the etiologic organisms. Please do not mention my name in publication.

M.D., Michigan.

ANSWER.—The skin disease described is undoubtedly erysipeloid, which is caused by Bacillus erysipelatis-suis, the same that is responsible for swine erysipelas, "diamond skin disease." The organism is widely disseminated in nature as a saprophyte and pathogen. It is estimated that 50 per cent of healthy swine are carriers of this infection and it is frequently found in dead animal or vegetable matter. Its virulence and its morphology are changed by passage through animals.

The disease in man, who is relatively immune, is usually mild, as described in the query. Sharply circumscribed, round or polycyclic red or bluish patches appear on the fingers at the site of some small wound and slowly spread, seldom going beyond the wrist. After a few weeks it subsides, the color changes to yellowish, and the lesions disappear usually without scaling. There are as a rule no subjective symptoms, but deep pain, burning or itching may be felt.

The disease as it is seen among fishermen infected from the slime about the fish may be more severe, with swelling of the part, lymphangitis, swollen and tender lymph glands and even at times mild constitutional symptoms.

Rarely the acute septicemic form occurs, with diffuse erythema and severe illness, even fatal in rare instances. A chronic form with arthritis and a peculiar vegetative endocarditis also occur. These are reported from Germany but are almost unknown in this country. Not only are fishermen, handlers of swine and pork, canners of fish, veterinarians, and those who handle dead animals infected, but accidental cases occur from handling rabbits, dead or alive, from the sting of a jelly fish, and even from wounds from the spines of dried fish.

A vaccine killed at 70 C. causes in healthy rabbits, according to W. Jadassohn (Handbuch der Haut und Geschlechts Krankheiten **2**:412) only a slight reaction. In rabbits that had recovered from erysipeloid, a marked reaction was the response.

The treatment includes rest and the application of heat and ultraviolet rays. Most efficacious is the serum of animals immunized to swine erysipelas. This often causes serum sickness. It has been found, however, that small doses, 5 cc. injected subcutaneously in many points about the lesions, will cause a prompt regression. Occasionally it is necessary to repeat the injections after a few days. See Klauder, J. V., and Harkins, M. J.: Erysipeloid in the United States, THE JOURNAL, April 11, 1931, page 1205. Direct communication with Dr. Klauder, 1934 Spruce Street, Philadelphia, is suggested.

UNDULANT FEVER

To the Editor:—I have a boy, aged 12, in my practice with undulant fever. He has probably had it about two months. He is not, nor has he been, acutely ill but his temperature has been 100 F. or a little over every night for at least six weeks. His physical examination is entirely negative. He feels fairly well in the morning, but in the afternoon when his temperature goes up he is listless and weak. His blood serum agglutinates Brucella abortus in a dilution of 1: 10,000. The white blood count is 6,400, with 81 per cent small lymphocytes. Are any of the various serums or vaccines that have been recommended worth using in such a case as this? Please omit name.

M.D., Massachusetts.

ANSWER.—Brucella melitensis (abortus) vaccine (N. N. R.) appears to exert a favorable influence on cases of brucellosis (undulant fever) of the type described. The vaccine is available through the usual trade sources. In view of the age of the patient it would seem advisable to begin the treatment with smaller doses than the 0.25 cc. doses ordinarily recommended. The dosage of the vaccine should be gradually increased, at intervals of three days, to approximately 1 cc. As the dosage is increased, a febrile reaction ordinarily occurs. The injection of a like amount of the vaccine three days later will ordinarily not produce so marked a reaction. If a second marked febrile reaction should occur, the dosage should be reduced to half of the amount that produced the reactions, for at least two injections, after which the dosage may usually be increased without the development of severe reactions. Following the development of a systemic febrile reaction the fever usually exhibits a declining trend. The response to vaccine therapy has been best in those patients who have experienced one or two systemic reactions. The average course of vaccine therapy requires approximately 10 cc. of the vaccine. Dr. Lee Foshay of the department of bacteriology, University of Cincinnati, has developed an antiabortus serum that is apparently effective during the first three months of the disease. I. F. Huddleson of Michigan State College, East Lansing, Mich., has utilized a broth filtrate of Brucella organisms known as "brucellin," in the therapy of brucellosis, with apparently good results.

SUBINVOLUTION OF UTERUS NOT RELATED TO MONSTROSITIES

To the Editor:—I have a woman patient who previous to her last pregnancy had a subinvoluted uterus. She recently delivered at term a monster which died after delivery. I am anxious that complete involution should take place this time. Would you advise me as to the treatment of choice in such cases of subinvolution of the uterus? Please omit name and address.

M.D., Oklahoma.

ANSWER.—There is no positive evidence that subinvolution is one of the causes for monstrosities. These are usually due to some defect in the germ plasm. Certain kinds of monstrosities and possibly some defects of germ plasm are due to diseases of the uterus, particularly endometritis—the real endometritis, not the hypertrophy that has recently been found to result from abnormal hypophyseal action. It is probable also that subinvolution, which was formerly ascribed to infection and laceration of the cervix, may also be due to abnormal functioning of the pituitary gland. Ergot preparations, hot douches, diathermy and other heat application methods, uterine massage, and active outdoor exercise have all been employed in the treatment of subinvolution. No one has yet tried endocrine therapy, and a few experiments in this direction might add to our knowledge.

CARCINOMA OF OVARY

To the Editor:—1. What is the frequency of carcinoma of the ovary in females prior to the establishment of the menstrual cycle (age 13 years)? 2. What is the frequency of the usual type of malignant tumor of the ovary in the same case as 1? 3. What is the prognosis as to removal of an unruptured ovary? 4. As to removal of a ruptured ovary? May I have an early reply? Kindly omit name.

M.D., Massachusetts.

ANSWER.—1 and 2. In a collection of 1,764 cases of tumors of the ovary, Olshausen found sixty-one cases below the age of 10 years. Hubert in 1901 reported 175 cases of tumors of the ovary up to the age of 17 years. He found 115 benign and sixty malignant tumors. Of the malignant tumors, twenty-eight were carcinoma (solid and cystic) and thirty-two sarcoma. Other statistics of 202 cystic tumors of the ovary in children showed 35 per cent cystomas, 31 per cent dermoids and 34 per cent malignant tumors. Sarcomas are more common in children than carcinomas.

3 and 4. The prognosis of ovariectomy depends entirely on the degree of malignancy of the tumor. The operation itself has a very low risk. Doederlein reports a mortality of 1.3 per cent in 452 operations for benign lesions and a mortality of 15 per cent in seventy ovariectomies because of carcinoma or sarcoma. Segalowitz found a mortality of 5.3 per cent in a collection of 1,134 ovariectomies for benign lesions and a mortality of 17.9 per cent in 356 malignant conditions. Rupture of a cystic ovary (spontaneous or during operation) does not influence the prognosis of benign cysts. In malignant lesions the consequent spreading of malignant material through the peritoneal cavity makes the prognosis very much worse.

BLOOD TRANSFUSION FROM SYPHILITIC PATIENT

To the Editor:—Would you please let me know whether a blood transfusion can be given by a donor who has had secondary syphilis, who has had adequate treatment on modern lines and whose blood and spinal Wassermann reactions are persistently negative? Please omit name.

M.D., Massachusetts.

ANSWER.—Under ordinary conditions one would not accept such an individual as a blood donor. All prospective donors should be questioned as to whether they have ever had syphilis, malaria and other infectious diseases regardless of negative tests at the time.

Under unusual conditions, such as an emergency or when there is an unusual blood group in which a delay necessary to obtain another donor might result in serious complications or death to a patient, one would advise the use of such a donor.

It is probable that any danger to the patient would be slight compared to the deprivation of blood, and there certainly would be much less risk than is entailed in many surgical and even medical methods of treatment.

DANGERS OF INFECTION FROM EMBALMED BODIES

To the Editor:—To what extent are the present methods of embalming an absolute safeguard against the spread of disease? Are there any disease conditions wherein, for contagious reasons, it would be inadvisable to reopen the casket at the church or the grave, for the benefit of relatives and friends? If you reply through THE JOURNAL, please omit name.

M.D., Missouri.

ANSWER.—Undoubtedly thorough cleansing of the body externally, including its surroundings, and injection of the vascular system with embalming fluid containing an adequate amount of formaldehyde will disinfect the body sufficiently to prevent the spread of infectious materials. In general, health departments, however, in order to secure the maximum safety after taking into consideration all the circumstances surrounding deaths from acute infections, have adopted rules that do not permit public funerals in deaths from certain acute infectious diseases.

TRANSMISSION OF TAPEWORM FROM DOG

To the Editor:—I have a small dog, which occasionally becomes infested with tapeworm. He is often fed bits from the table at meal time. Will you kindly inform me whether there is danger of transmission of the canine variety of tapeworm to man and whether man is susceptible?

REGINALD K. FRANCIS, M.D., Inglewood, Calif.

ANSWER.—As the dog harbors a number of tapeworms of different genera some of which can live in man as adults (intestinal infections) or as larvae (somatic infections), it is impossible to answer the question without knowing the species of worm involved. It is probable that the tapeworm referred to is Dipylidium caninum, in which the larvae develop in the dog louse or flea and in which human infestations are acquired by the accidental swallowing of these insects. Less than a hundred such infestations of man are known and they are exceedingly rare in the United States.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALASKA: Juneau, Sept. 1. Sec., Dr. W. W. Council, Juneau.

ARKANSAS: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Nov. 10. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, Nov. 10. Sec., Dr. Clarence H. Young, 207½ Main St., Little Rock.

CALIFORNIA: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Oct. 10. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

FLORIDA: Jacksonville, Nov. 16-17. Sec., Dr. William M. Rowlett, P. O. Box 786, Tampa.

GEORGIA: Atlanta, Oct. 13. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, Oct. 20-22. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

KENTUCKY: Louisville, Dec. 2-4. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Regular.* Baltimore, Dec. 8. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 6-7. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 20-22. Sec., Dr. Julian F. DuBois, 350 St. Peter St., St. Paul.

MONTANA: Helena, Oct. 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEVADA: Carson City, Aug. 3. Sec., Dr. John E. Worden, Carson City.

NEW HAMPSHIRE: Concord, Sept. 10-11. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. Arthur W. Belting, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 12-13. Sec., Dr. Le Grand Ward, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 21-24. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Dec. 9. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Nov. 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene. *Medical.* Portland, Jan. 5-7. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

PUERTO RICO: San Juan, Sept. 1. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

VIRGINIA: Richmond, Dec. 9-13. Sec., Dr. J. W. Preston, 281 Franklin Road, Roanoke.

WISCONSIN: *Reciprocity.* Madison, Sept. 8-9. Sec., Dr. Robert E. Flynn, 401 Main St., La Crosse. *Basic Science.* Madison, Sept. 26. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: Philadelphia, June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B candidates will be held in various cities in the United States and Canada, Nov. 7. *Applications must be filed at least sixty days prior to the examination.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: New York, Sept. 26. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Cleveland, Jan. 9. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, Sept. 25-26. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Baltimore and Cincinnati in November. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 29-30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Cleveland, Sept. 25-27. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

Iowa February Examination

Mr. H. W. Grefe, director, Division of Licensure and Registration, reports the written examination held in Des Moines, Feb. 25-27, 1936. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Creighton University School of Medicine		(1935)	77.1,* 83.5,* 87.3,* 89.1*
University of Toronto Faculty of Medicine		(1928)	88.3

* License withheld pending completion of internship.

Arizona April Examination

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held in Phoenix, April 7-8, 1936. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Kansas School of Medicine		(1935)	79.9
St. Louis University School of Medicine		(1935)	81.8
University of Tennessee College of Medicine		(1935)	85.2

Idaho April Examination

Hon. Emmitt Pfost, Commissioner of Law Enforcement, reports the oral and written examination held in Boise, April 7-8, 1936. The examination covered 13 subjects and included 130 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Eleven physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Rush Medical College		(1920)	75
University of Minnesota Medical School		(1934)	84
University of Oregon Medical School		(1930) 90, (1933)	87

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Colorado School of Medicine		(1930) (1934)	Washington, Colorado
University of Illinois College of Medicine		(1933)	Illinois
State University of Iowa College of Medicine		(1908), (1931), (1933), (1934)	Iowa
University of Nebraska College of Medicine		(1933)	Nebraska, Oregon
Western Reserve University School of Medicine		(1933)	Ohio
University of Oregon Medical School		(1932)	Utah

Colorado April Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written and practical examination held in Denver, April 8-10, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Ten physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Tulane University of Louisiana School of Medicine		(1935)	1
University of Tennessee College of Medicine		(1915)	1
Osteopaths*			4

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1925)	California
School of Med. of the Div. of the Biological Sciences		(1935)	Illinois
Indiana University School of Medicine		(1928)	Indiana
University of Louisville School of Medicine		(1932)	Kentucky
Johns Hopkins University School of Medicine		(1933)	Maryland
Washington University School of Medicine		(1933)	Missouri
University of Nebraska College of Medicine		(1929), (1933)	Nebraska
University of Oklahoma School of Medicine		(1931)	Oklahoma
University of Pennsylvania School of Medicine		(1931)	Penna.

* Licensed to practice medicine and surgery.

New Hampshire March Examination

Dr. Charles Duncan, secretary, New Hampshire Board of Registration in Medicine, reports the examination held in Concord, March 12-13, 1936. Twelve physicians were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Harvard University Medical School		(1933), (1934), (1935)	3
Tufts College Medical School		(1934), (1935, 4)	5
Laval University Faculty of Medicine		(1932)	1
McGill University Faculty of Medicine		(1935)	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1893)*	1
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1927)*	1

Seven physicians were licensed by reciprocity and 3 physicians were licensed by endorsement from February 6 through May 25. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Boston University School of Medicine		(1933)	Maine
Harvard University Medical School		(1933)	Maine, Mass.

Tufts College Medical School	(1928), (1931)	Mass.
University of Vermont College of Medicine	(1933)	Vermont
Medical College of Virginia	(1933)	Virginia

LICENSED BY ENDORSEMENT

School	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine	(1934)	N. B. M. Ex.
McGill University Faculty of Medicine	(1932), (1934)	N. B. M. Ex.

* Verification of graduation in process.

Book Notices

The Adrenals. By Arthur Grollman, Ph.D., M.D., Associate Professor of Pharmacology and Experimental Therapeutics in the Medical School of The Johns Hopkins University. Cloth. Price, $5. Pp. 410, with 17 illustrations. Baltimore: Williams & Wilkins Company, 1936.

This is chiefly a compilation, with little if any critical analysis, of literature covering some prominent phases of the subject. A bibliography of 704 references is appended. In view of the fact that this corresponds to not more than about a tenth of the total number of published articles on the adrenals (as a conservative estimate), the author may be congratulated for his courage in undertaking to sift out of so enormous a mass of heterogeneous material that which he considers worthy of record. In view of the superabundance of available literature, an onus probandi rests on the author of a monograph to establish its *raison d'être*. Its merit may be judged by its content of new or unpublished material, critical analysis of existing literature, especially controversial subjects, elaboration and discussion of the author's own original contributions and of his experience in the field, and other similar considerations. These form the basis of the present review.

Half of the space in the book is devoted to historical, anatomic and clinical material. In addition, some forty-two pages are devoted to chemistry and pharmacology of epinephrine. This seems entirely out of proportion to the space devoted to the physiology and pathology of an organ whose obscure function in health and disease has been a challenge to investigators for nearly a century. At any rate, the subjects are sufficiently and more extensively treated in existing available works.

The outstanding new contribution is represented by the coinage of the term "androgenic" to designate a zone in the adrenal cortex already well named as the "juxtamedullary" zone. The latter indicates its anatomic position while the former implies a functional distinction that is far from being established. According to information obtained from the Council on Pharmacy and Chemistry the term androgenic has been employed previously, by others, to designate activity of substances, termed "androgens," that are extracted from testes and from urine. Although pathologic manifestations involving secondary sex characters are known in which neoplastic development in the adrenal may be found in this zone, it appears unwarranted to designate specifically this portion of the adrenal by a term which has sex functional implications, unless such function is adequately proved. The author leans strongly for support on this pathologic evidence but overlooks the significance of the fact that the juxtamedullary zone undergoes or has undergone regression at the period when secondary sex characters are manifested, the very period when one should expect continued presence or hyperplasia of cells that are endowed with androgenic potentiality.

A number of inaccuracies occur; e. g. (p. 88), referring to the intestinal strip as a reagent for detecting epinephrine, it is stated that "Cannon and Hoskins claim this test to be sensitive to epinephrine in a dilution of 1 to 400 millions." This cannot be found in the paper by Cannon and Hoskins referred to, although in a previous paper by Cannon and de la Paz there is evidence that their intestinal strips reacted to epinephrine concentrations of from 1 to 1 million to 1 to 3 million, while Magnus obtained reactions with 1 to 20 million. Another, more glaring, inaccuracy is the statement (p. 98) "Stewart and Rogoff's failure to demonstrate that sensory stimulation does not increase the secretion of epinephrine was due probably to the experimental methods which these authors utilized." Such a statement is absurd, since the literature clearly shows that Stewart and Rogoff have consistently found the exact opposite of what is here alleged from their experiments. Indeed, this is one of the principal points of difference between them and Cannon, in their long standing controversy.

Regarding this controversy, which has held the interest of physiologists for many years, the author has almost nothing to say. Cannon's theory of emergency function of the adrenals is scarcely given mention, although this is not only the most prominent but the most seriously contested theory of adrenal function. During many years Cannon and his pupils have ably and intensively labored to support the theory while, with equal ability and intensity, Stewart and Rogoff have elaborated experimental evidence controverting it. This important phase of the subject relating to adrenal function is evaded by assuming the safe position that Cannon may be both right and wrong, with the statement (p. 110) "Cannon and his collaborators are probably correct in assuming an increased output of epinephrine under various conditions in which epinephrine by its pharmacodynamic reactions would be useful to the organism in an emergency. It is very doubtful, however, if the amounts of epinephrine secreted under these conditions would suffice to be of any significance to the organism as demanded by Cannon's theory." The supposed relation of "sympathin" to various reactions attributable to epinephrine and also its relation to the emergency theory is apparently not considered. The author appears satisfied that "different methods" can account for wide differences in a "normal" rate of secretion, although the figure for the normal rate alleged by one author is about 100 times that of the figure given by another. The significance of such improbable functional variations and of the relation of these quantitative discrepancies in a normal phenomenon to functional concepts is not adequately considered.

The chapter on the adrenal cortex is not less incomplete than that on the medulla. Without depreciating the value of the author's own contributions in this field, it may be said that, since his work is too recent (since 1933) to have the advantage of confirmation, undue emphasis and disproportionate space have been given to it. Premature credence is given also to some physiologic, chemical and clinical concepts that are by no means adequately established. The original work of Rogoff and Stewart on the adrenal cortex and their demonstration of the possibility of obtaining active cortical extracts is not mentioned, and while oral administration of active cortical material is recommended in the treatment of Addison's disease, it apparently relates to the unproved "charcoal" product described by the author and not to the product of proved merit reported by Rogoff in a relatively large, controlled series of cases of Addison's disease. The section devoted to clinical considerations is much too brief to be very useful. In spite of fairly good compilation of general conclusions existing in papers representing a prominent portion of the literature on the subject, it seems that the publishers are hardly justified in representing the book as "a complete monograph on the adrenals."

Traité d'embryologie des vertébrés. Par A. Brachet, professeur à l'Université de Bruxelles. Revue et complétée par A. Dalcq et P. Gérard, professeurs à l'Université de Bruxelles. Second edition. Cloth. Price, 130 francs. Pp. 690, with 603 illustrations. Paris: Masson & Cie, 1935.

Brachet's book on the embryology of vertebrates was published in 1921. It was a welcome contribution to the science of anatomy. Agassiz proclaimed long ago that many of the most significant and illuminating facts of comparative anatomy must lie in comparative embryology. They throw light on the course of evolution, the principles of structure and the nature of organs. Brachet's work was characterized by method, logic and clarity of statement. His book was not simply a storehouse of facts; it was a clear logical, thought provoking interpretation of them. His mental qualities together with his winning personality won for Brachet world wide respect and popularity among anatomists and zoologists and his book was welcomed. It was devoted purely to general morphogenesis in contrast with most books in the field, which, written by anatomists, made embryology ancillary to organogenesis or histogenesis. In 1930 Brachet began work on a second edition but shortly afterward was stricken by his final illness. The work was then taken over by his colleagues in the University of Brussels, Professors Dalcq and Gérard. They revised and completed it along the lines projected by the author. The first part, 356 pages, deals with general embryology—sex cells, blastulation, gastrulation and germ layers. The second part, 317 pages, deals with the embryology of special regions and organs. New facts requiring modification of the older inter-

pretations have necessitated the rewriting of the chapters on gastrulation, formation of the embryo, and origin of gonocytes. Professors Dalcq and Gérard have done their work well. The new edition, like the old, excels in the logic and clarity of its presentation and interpretation. Many new illustrations in black and white have been added, drawn mainly by the same artist, Van Wetter. The form and printing are in the excellent style characteristic of the publisher.

Allergy of the Nose and Paranasal Sinuses: A Monograph on the Subject of Allergy as Related to Otolaryngology. By French K. Hansel, M.D., M.S., Assistant Professor of Clinical Otolaryngology, Washington University School of Medicine. Cloth. Price, $10. Pp. 820, with 61 illustrations. St. Louis: C. V. Mosby Company, 1936.

Hansel's monograph is written not for the general practitioner but for the specialist in otolaryngology or allergy who is interested in the details of these related fields. It does not limit itself to allergy of the nose and paranasal sinuses. Bronchial asthma, gastro-intestinal allergy and migraine are as thoroughly treated. The one field covered too briefly is that of the dermatologic conditions. The literature is almost completely reviewed without editorial comment except at the end of certain chapters when the data are either conflicting or confusing. In such cases the author summarizes the data critically under the term "discussion." The first four chapters are devoted to such fundamental discussion as the physiology of the nose and paranasal sinuses, the biochemistry of the secretion, and the bacteriology of the nose and paranasal sinuses. An equally adequate treatment is then given to allergy in general. The rest of the book is devoted to clinical considerations of interest to the allergist and otolaryngologist. The chapter on roentgen examination of the paranasal sinuses is particularly well illustrated, with emphasis on the value of radiopaque substances. The treatment of hay fever is thoroughly considered in the last hundred pages. Hansel is to be congratulated on accomplishing more than the title implies. His book is the most authoritative and comprehensive one on the subject. In a field where the allergist should be a rhinologist and the rhinologist an allergist, he has covered the subject so thoroughly that it may well be a bridge of understanding between the two specialties.

Sammlung psychiatrischer und neurologischer Einzeldarstellungen. Herausgegeben von Prof. Dr. A. Bostroem und Prof. Dr. J. Lange. Band IX: Wach- und Wahrträumen bei Gesunden und Kranken. Von Prof. Dr. F. Kehrer, Direktor der Psychiatrischen und Nervenklinik der Universität Münster in Westfalen. Paper. Price, 4.80 marks. Pp. 72, with 1 illustration. Leipzig: Georg Thieme, 1935.

This monograph deals with dreamlike experiences that occur in an altered state of consciousness, but in the waking state, and also with prophetic dreams or dreams of second sight. For the former, common usage would permit the term "day dream," but the author specifically objects to this term as the dreamlike experiences dealt with are independent of time of day or night and must be distinguished from dreams by the fact that actually the subject is in the waking state despite changes in consciousness, in muscular tension and in reduction of responsiveness to sensory stimuli approaching that found during sleep. The author describes various states of abstraction or preoccupation, such as the hypnotic trance, fascination and ecstatic states, and distinguishes these from the day dream or waking dream. The waking dream is to be distinguished from the dream of the sleeping state, among other considerations, by the fact that the latter are not susceptible to the "will" of the dreamer, while the former to an appreciable degree may be induced or dissipated at will by the subject.

The waking dream is not characterized by the dissociation and incoherence that characterizes the sleeping dream. The waking dreams are pictorial. They are pseudohallucinatory in character—the subject is always correctly oriented as to their unreality. The content of the waking dreams may represent any of the conceptions or ideas of the waking or sleeping state. The dreams are emotionally positively and agreeably charged and gratify definite urges or impulses. They may be characterized as psychic devices for self gratification through phantasy images. With some individuals the content of the dream is sexual and the excitation and gratification sexual in character. The dream may be fairy-tale like in character or may at times pertain to actual past experiences of the subject.

The author also discusses "wahrträume," or "true" dreams; that is, the occurrence in a dreamlike state of a historical event of which the subject has no adequate knowledge, or of an event that occurs at the same or at a future time. He describes prophetic dreams and "second sight." The close relation of these to the waking dream is traced. The author feels that no scientifically adequate researches covering these phenomena have been as yet reported. He discusses its occurrence among normal and psychopathic subjects. The occurrence of the waking dream is dependent on instinctual drives or impulses, deriving its energy from forces dependent on the peculiar personality of the subject. Waking dreams are a peculiar development of the child's impulse to play. The author believes that this phenomenon can be included with other "instinct anomalies" and may be regarded in the same light as the well known deviations in the instinctual life, such as sexual perversions, opium and other drug addictions, and criminal instinctual acts. He reports a case from his own experience in which, over a period of years, the patient compulsively indulged in primarily wishful phantasy, to the exclusion of actual accomplishment. The author insists that he is dealing with a case that belongs to a distinctive psychopathologic type, belonging to the group "constitutionally psychopathic" individuals. He emphasizes hereditary determination in his own case and summarizes the peculiarities as weakness of sense of reality, feelings of inferiority, incapacity for self determination, weak gregarious tendencies, weak sexual impulses, emphasized phantasy, poor capacity for concentration, and generally weak will. He emphasizes the passivity evidenced by his patient and other members of the family.

Descriptively, the author's treatment of his subject and material is splendid, and quite complete. From a dynamic psychologic point of view his discussion is suggestive but incomplete. If he is correct in relating the cases evidencing the phenomenon he discusses to other forms of addiction, it is likely that the particular passive need for and the neurotic utility of indulgence in the phantasy could be more sharply defined through psychoanalytic studies. The author is well aware of the compensatory and wishful character of the waking dreams in his cases, but how and why the subjects have been driven into the given patterns described is not stated and probably could not be adequately stated without psychoanalytic study. It is doubtful that the designation of a distinctive psychopathologic type is warranted, since probably all gradations of the phenomena described can be observed with widely varying degrees of constitutional deviation.

The Postgraduate Instruction of Health Officers and Nurses, with an Appendix Giving Suggestions for the Preparation of Sanitation Personnel. By Henry E. Meleney, M.D., Associate Professor of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, and Walter S. Leathers, M.D., Professor of Preventive Medicine and Public Health and Dean, Vanderbilt University School of Medicine. Paper. Pp. 73. New York: Commonwealth Fund, 1936.

This monograph is a description of the cooperative project in postgraduate instruction of health officers and nurses that is being carried out by Vanderbilt University, the state health department of Tennessee, and the county health departments of Rutherford, Williamson, Gibson, Sullivan and Davidson, all in Tennessee. It is a recognition of the fact that public health work depends in the last analysis not on organization but on the qualifications of personnel. "It is obvious," say the authors, "that any physician who is placed in charge of a full-time health department at the present time should have had some kind of preliminary instruction in public health administration." The same is true, of course, of nurses. The prospective and indeed imminent expansion of state and local public health work as a result of federal aid through the Social Security Act has already created a large demand for qualified workers in public health. The only way in which new positions in the public health field can now be filled with qualified personnel is by robbing some other organization. It is one of the paradoxes of this depression that in the midst of widespread unemployment there is a serious lack of qualified personnel for desirable jobs waiting to be filled. Moreover, there is certainly no excess of available educational facilities in this country for the training of public health personnel. The schools of public health that are organized for postgraduate training of physicians and nurses who seek to qualify

for public health positions are strained to the limit of their resources. Standards set by committees of state and territorial health officers advising the United States Public Health Service and the United States Children's Bureau have been established on a plane lower than was admittedly desirable, because the committees were forced to recognize the dearth of qualified personnel and the lack of adequate accommodations for large numbers of trainees. In the light of these circumstances, the experiment in Tennessee on the eminently practical basis that has been established should be watched with interest. Perhaps the most constructive benefit that might arise out of federal aid to local and state-wide public health work will be the better training of personnel. Whatever may be the ultimate fate of federal subsidies, public health organizations and the public whom they serve will derive a lasting benefit from improvement in the training and qualifications of public health workers.

A Classification for Medical Libraries, with Introduction, Local List, Index of Parasites and General Index. By Cyril C. Barnard, B.A., Univ. Dipl. in Librarianship, F.L.A., Librarian, London School of Hygiene and Tropical Medicine. Being a Thesis Approved for the Diploma with Honours of the Library Association (1931). Cloth. Price, 10s. 6d. Pp. 142. London: Percy Lund, Humphries & Co., Ltd., 1936.

This adds another to the several classification schemes now available for medical literature. The author states that it was submitted to the Library Association (British) and approved for the diploma with honors in 1931. For financial reasons it was not published until this year. Now it is printed in typewriter type by means of the replica process, a method of printing known in this country as the planograph process. This work represents the result of twenty-one years of practical experience by the author in four medical libraries of widely different types. The principle underlying this scheme is that of specific entry; namely, one place for each topic, under which are grouped all its aspects. This, of course, is contrary to the principle adopted by the Dewey system, in which works on the anatomy, physiology, pathology and surgery of an organ are distributed in four different places. The system of notation adopted is the same as that used by Cutter, pure alphabetical notation with the exception of the local or geographic list, which is numerical. The author freely admits that considerable help was derived in developing his final scheme from the Boston Medical Library classification, which did not come to his notice until 1927, several years after his initial plan. The chief advantages claimed for his classification over the Boston scheme are (1) the greater power of expansion from the use of Cutter's notation, which makes it easier to insert new topics at the most appropriate place, and (2) the more logical basis for the arrangement of specific infectious diseases. Perhaps the greatest advantage of all in this new classification system is its excellent index, a feature which all other special medical classifications have neglected to provide.

Bewildered Patient. By Marian S. Newcomer, M.D. Cloth. Price, $1.75. Pp. 325. Boston: Hale, Cushman & Flint, 1936.

There is a great deal of useful information in this book, and in general the patient might be expected to benefit from its reading. The book is well written. There are certain errors which ought not to have crept in, as, for example, the author's endorsement of the idea that taking of sugar in an emergency gives an immediate increase of available energy in the presence of serious fatigue. There is a reference to milk as a perfect food, which also should have been qualified. The discussion of vitamin A and its relation to resistance is subject to interpretation favorable to certain commercial claims for vitamin A which have not been acceptable to the Council on Pharmacy and Chemistry of the American Medical Association. Neither would the Council agree that it is desirable to increase the amount of vitamin D in many foods by treating them with ultraviolet rays. The Committee on the Costs of Medical Care is referred to as a Committee of the American Medical Association, the Metropolitan Life Insurance Company and other organizations! On the other hand, the chapter on what a physician can do for his patient is excellent. The inaccuracies that have been mentioned are small and few in number and are the more unfortunate because they mar an excellent work which, as a whole, will serve to do much to clear up the confusion of the bewildered patient.

Painful and Dangerous Diseases of the Ear: A Text-Book for Students and General Practitioners. By R. R. Woods, M.B., F.R.C.S.I., Surgeon in charge of the Ear, Nose, and Throat Department, Sir Patrick Dun's Hospital, Dublin. Cloth. Price, $5.25. Pp. 188, with 43 illustrations. New York & London: Oxford University Press, 1936.

The author states that what he believes is much needed is "detailed instruction concerning such painful or immediately dangerous conditions as occur in general practice, while leaving more specialized and less urgent matter, if it is to be learned at all, to postgraduate study." This little work is systematically arranged. A chapter on essential anatomy of the various parts of the ear is followed by one on instruments, method of examination, syringing and cleaning of the ear, which topics constitute the first part of the book. The author gives important points regarding the handling of appliances such as the aural speculum and the otoscope, in order that no pain or discomfort may be occasioned the patient. In the second part under the heading of acute uncomplicated aural inflammations the subjects of acute otitis externa and acute otitis media are discussed. Next come differential diagnosis of earache, acute otitis media in infants, and chronic suppurative otitis. The third part of the book is devoted to acute mastoiditis, and the fourth part to intracranial complications of ear infections. The book in a brief way gives definite information, which should be of special value to students and of more value to general practitioners and in some cases may even be used to advantage by those who are entering on the specialty of otology. The illustrations are clear and of a practical character.

Preventive Medicine and Hygiene. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard Medical School. Sixth edition. Cloth. Price, $10. Pp. 1,481, with 147 illustrations. New York & London: D. Appleton-Century Company, Inc., 1935.

This standard textbook on preventive medicine and hygiene, the first edition of which appeared in 1913, is distinguished in its latest edition, as always, by its completeness, its clear and useful descriptions of disease, and the technics of prevention. Numerous authorities have been consulted and have made contributions in special fields. The discussions of subjects that have come into prominence in preventive medicine and hygiene are particularly valuable. Notable are the sections on food poisonings, tularemia, air conditioning, radiation and mental hygiene. No health officer or public health department can function effectively without adequate information such as is contained in compact and convenient form in this book. A complete index adds greatly to the usefulness of the volume both for reference use and as a textbook. The bibliographies are extensive and cover source material in many languages. The book should have a place in the libraries of medical schools, health departments and other public health agencies, and in the library of the progressive physician. For the public library with limited funds this would make a comprehensive and useful reference work. The book contains relatively few illustrations, but these are well selected. There are many charts and useful statistical tables.

Thérapeutique hydro-climatologique des maladies du foie et des voies biliaires. Par Paul Carnot, professeur de clinique médicale à la Faculté de médecine de Paris, Maurice Villaret, professeur à la Faculté de médecine de Paris, et René Cachera, chef de clinique à la Faculté de médecine de Paris. Paper. Price, 20 francs. Pp. 152, with 4 illustrations. Paris: Masson & Cie, 1935.

This volume discusses briefly an ancient method for the treatment of the diseases of the liver and bile tracts and their associated gastro-intestinal complications by the use of various mineral waters. Empirically it has been known for centuries that these waters are of definite benefit in the treatment of chronic cholecystitis, liver "sclerosis," hepatic "congestions" and icterus. An attempt is made to summarize the clinical and experimental data collected over a long period. The analyses of the waters at the various French spas are given, together with indications for their use in the various diseases. The more important places in France are listed, and included is a brief description of the waters and a summary of the diseases for which they are apparently suited. A high degree of enthusiasm is expressed and probably should be taken with some reservation. The volume will be of some benefit to the physician in this country who is suggesting French spas for therapeutic reasons.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Privileged Communications: Testimony of Physician in Absence of Jury.—During the trial of a personal injury action, a physician who had examined the plaintiff was permitted, on behalf of the defendant, to testify, in the absence of the jury, concerning the plaintiff's physical condition at the time of the examination. Later this same witness was permitted to answer hypothetical questions based on the previously given testimony. The admission of this testimony, said the Supreme Court of Mississippi, constituted error. Section 1536, Code of Mississippi, 1930, accords a privileged status to matters ascertained by a physician during the course of his examination of a patient. The fact that the disclosure in the present case was in the absence of the jury was considered immaterial. The policy of the privileged communications statute, said the Supreme Court, should be strictly observed. It is neither permissible to disclose such communications before a court in the absence of the jury, nor may hypothetical questions be asked a physician as an expert embracing matters testified to by him, without the consent of the patient. Although in the opinion of the court the testimony of the physician was inadmissible, the judgment of the trial court for the defendant was affirmed because it was the only one that could have been rendered on the facts in the case.—*Powell v. Newman Lumber Co. (Miss.), 165 So. 299.*

Workmen's Compensation Acts: Death in Relation to Trauma and Preexisting Leukemia.—Henry was employed at the defendants' dairy farm. On July 10 and 11 he was treated for a condition on his right hip resembling a boil and for an encrusted lesion on his right ankle. At this time it was suspected that he had leukemia. On July 17, a calf kicked or stepped on his left ankle, inflicting a scratch. The area surrounding the scratch became red and swollen. On July 31 he sustained a contusion of the chest and a general shaking up when a cow butted him. An ulcer developed on his left ankle which resulted in gangrene of his left leg, septicemia set in, and he died on August 12. The claimant, Henry's widow, applied for compensation under the workmen's compensation act. The commissioner found: "The leukemic condition which [decedent] had was aggravated by the sepsis in his left ankle following the injury of July 17th and by the general shaking up and bruising of July 31st" and "although monocytic leukemia is in itself fatal, the decedent's death was hastened by the sepsis . . . and by the . . . shaking up and bruising . . . which was followed by the septicemia." The commissioner concluded that the traumas were the immediate and proximate cause of Henry's death and awarded compensation for a period of 312 weeks. The superior court, on appeal, sustained the award in part but remanded the case for a finding as to the expectancy of life in monocytic leukemia so that an apportionment of compensation might be made under section 5223 of the workmen's compensation act, which provides: "In the case of aggravation of a pre-existing disease, compensation shall be allowed only for such proportion of the disability or death due to the aggravation of such pre-existing disease as may be reasonably attributed to the injury on which the claim is based." The claimant and the defendants thereupon appealed to the Supreme Court of Errors of Connecticut.

The defendants contended that even if injuries and septicemia had occurred, which they denied, Henry's death was caused solely by leukemia without aggravation by such injuries. The claimant, however, contended that the superior court had erroneously construed the commissioner's finding to mean that the cause of death was leukemia aggravated and accelerated by bodily injury rather than injury with leukemia merely a contributing cause. The Supreme Court of Errors held that the commissioner's finding should be interpreted as meaning that Henry was afflicted with a disease which would ultimately be fatal but that by reason of his injuries his death occurred earlier than it would normally. The section pertaining to apportionment of compensation, said the court, applies whether the immediate cause of incapacity or death is the preexisting disease aggravated by injury, or whether the cause is the injury the incapacity from which has been increased by the preexisting disease or the death from which has been accelerated by it. However, the existence of a constitutional condition or latent tendency predisposing an employee to an injury does not subject him or his dependents to an apportionment unless there is a preexisting disease which, operating in conjunction with the injury, does in fact increase the incapacity or accelerate the death. Furthermore, in the opinion of the court, the evidence indicated that the maximum expectancy of life in monocytic leukemia was much less than the period covered by the award.

The Supreme Court of Errors could find no error in the judgment of the superior court and therefore affirmed it.—*Henry v. Keegan (Conn.) 183, A. 14.*

Workmen's Compensation Acts: Rupture of Intestine Allegedly Due to Trauma.—The claimant, Piplin, originally applied to the workmen's compensation commission for compensation for a hernia which he alleged resulted from accidental injuries sustained in the course of his employment. The deputy commissioner denied compensation because the claimant had failed to prove that the descent of the hernia had immediately followed the cause as was required by the workmen's compensation act. Subsequently, the claimant again applied to the commission for compensation, claiming that the accident to which he had previously attributed the hernia had caused a rupture of his small intestine. The commissioner awarded him compensation on this claim. This award was affirmed by the court of common pleas, whereupon the employer appealed to the supreme court of New Jersey.

The claimant testified that while lifting heavy barrels he felt a strain or "kink" in the region of his stomach and that later on in the same day a lighter barrel slipped from his grasp, struck him in the right abdominal region and caused him great pain in his groin. The claimant thereafter noticed a "big red mark" on his abdomen. He quit work and went home. That evening he entered a hospital, where, on the following morning, he underwent an operation for a rupture of the small intestine. The medical witness for the claimant testified that the rupture of the intestine was the result either "of a strangulation or a blow," and that "it could have been" the proximate result of the accident. The claimant must do more, said the court, than show that the condition "could have been" the result of the accident. While the claimant's evidence was meager and uncertain, leaving the matter in the realm of doubt and speculation, the testimony presented by the employer was definite and persuasive that the ruptured intestine was not caused by the accident. In the opinion of the supreme court, the claimant was not entitled to compensation, and the judgment of the lower court awarding compensation was reversed.—*Wolfe & Co. v. Piplin (N. J.), 183 A. 187.*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Bretton Woods, N. H., Sept. 14-16. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Congress of Physical Therapy, New York, Sept. 8-11. Dr. Nathan H. Polmer, 921 Canal Street, New Orleans, Secretary.

Colorado State Medical Society, Glenwood Springs, Sept. 9-12. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Executive Secretary.

Idaho State Medical Association, Boise, Aug. 31-Sept. 4. Dr. Harold W. Stone, 105 North Eighth St., Boise, Secretary.

National Medical Association, Philadelphia, Aug. 16-22. Dr. W. Harry Barnes, 1315 North 15th St., Philadelphia, Acting Secretary.

Northern Minnesota Medical Association, Fergus Falls, Aug. 31-Sept. 1. Dr. Oscar O. Larsen, Detroit Lakes, Secretary.

Washington State Medical Association, Yakima, Aug. 31-Sept. 2. Dr. Vernon W. Spickard, 1303 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Madison, Sept. 8-11. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Wyoming State Medical Society, Cody, Aug. 24-25. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases and Nutrition, Chicago

3: 149-212 (May) 1936

Gastroscopic Observation Concerned with Gross Anatomy of Stomach: The Musculus Sphincter Antri: Observation of Position of Stomach: The Mucosal Folds. R. Schindler, Chicago.—p. 149.

Relationship of Histologic and Gastroscopic Findings in Diagnosis of Chronic Gastritis: Brief Review. R. Schindler, Chicago.—p. 153.

*Intragastric Photography. R. Finkelstein, Brooklyn.—p. 155.

The Origin, Fate and Significance of Serum Enzymes. A. W. Oelgoetz, P. A. Oelgoetz and J. Wittekind, Columbus, Ohio.—p. 159.

*Daily Variations in Concentrations of Acid and Pepsin in Gastric Juice of Three Persons Observed for Two Months. W. C. Alvarez, Frances R. Vanzant and A. E. Osterberg, Rochester, Minn.—p. 162.

Influence of Mucoitinsulfuric Acid on Peptic Digestion. S. A. Komarov, Montreal.—p. 164.

Pyloroplasty, Gastro-Enterostomy and Partial Parasympathetic Denervation of Pyloric Sphincter, and Their Relation to Emptying Time of Stomach. G. Crisler and E. J. Van Liere, Morgantown, W. Va.—p. 167.

Extensive Resection of Small Intestine in Rat, with Especial Reference to Anemia. H. L. Alt, Chicago.—p. 169.

Studies on Autodigestion: VI. Digestion of Living Tissues in Stomach Juice (Claude Bernard's Experiment). M. H. Maskin, R. Callahan and H. Necheles, Chicago.—p. 174.

Survey of 490 Diabetic Admissions to General Hospitals. L. C. McGee, Elkins, W. Va.—p. 178.

Radiologic Demonstration of Allergic Reaction in Mucosa and Musculature of Colon. L. P. Gay, St. Louis.—p. 181.

Phenolphthalein Administration to Nursing Women. B. Fantus and J. M. Dyniewicz, Chicago.—p. 184.

Pathologic Physiology of Stomach Following Subtotal Gastrectomy for Gastroduodenal Ulcer. F. Milanes, Havana, Cuba.—p. 186.

Anal Cryptitis. P. C. Blaisdell, Pasadena, Calif.—p. 188.

Intragastric Photography.—Finkelstein has used intragastric photography in 216 patients; roentgenography and intragastric photography agreed in the examination of 153 patients. Of these, fifty were reported as normal, fifty-two suffered from carcinoma of the stomach and fifty-one showed the presence of gastric ulcer. In seven patients the roentgenologist suspected carcinoma. However, the intragastric pictures were definitely positive. Three of these patients were operated on and the diagnosis was confirmed. In the remainder of the series, both methods differed in their diagnostic pointings. In fifteen of these patients, the intragastric pictures showed the presence of ulcer, most of the ulcers being quite shallow. Thirteen of these patients were roentgenographed, with the diagnosis of pyloric carcinoma in two and with negative results in the remainder. Three of this series were operated on and the diagnoses by intragastric photography were confirmed. In the remaining ten patients, the diagnosis was substantiated by the history and subsequent clinical course. Chronic gastritis was diagnosed twenty-eight times. In twenty-seven instances the roentgen reports were negative. In one patient the report was carcinoma of the stomach. Operation proved the presence of marked hypertrophic gastritis with no evidence of carcinoma. Three cases of gastric carcinoma were diagnosed correctly by intragastric photography. This observation was proved by operation on two patients; the third died with evidence of carcinoma and metastases. In two of these subjects the roentgen diagnosis was gastric ulcer; in one "no defect" was noted. On the other hand, in eight patients the roentgen examination showed the presence of ulcer which was not the diagnosis after intragastric photography. One of these patients was operated on, but no ulcer was found. In two patients who had been operated on previously for gastric ulcer and a gastro-enterostomy performed, the roentgenograms showed patent stomas. The intragastric films, however, failed to reveal the site of the gastro-enterostomy Intragastric photography should prove useful in the diagnosis of early gastric tumors, especially malignant ones, at a stage when it is difficult to demonstrate them roentgenographically. The procedure is very useful in the diagnosis of chronic gastritis, in which roentgenograms are practically of no value. It should be possible to differentiate the atrophic from the hypertrophic type of chronic gastritis by means of these photographs.

Variations in Acid and Pepsin in Gastric Juice.—While studying the effect of a diet deficient in vitamin B_1, Alvarez and his associates had the opportunity of studying for two months the concentrations of acid and pepsin in the gastric juice removed almost every day from the stomachs of two women and one man. There were marked daily variations in the concentration of acid and pepsin in the gastric juice of the three persons. At times when these variations were great, one gastric analysis or even three or four analyses made on successive days would have given a decidedly misleading idea of the usual ability of the particular stomach to secrete acid and pepsin. The variability in gastric secretion was different. The evidence suggests that the greatest degrees of variability are to be found in nervous, impressionable and temperamental persons who react too much to their environment. It is conceivable that the big daily changes in the digestive power of the gastric juice which take place in nervous persons can at times have deleterious effects on the mucous membranes of the stomach and the duodenum.

American Journal of Surgery, New York

32: 195-390 (May) 1936

Postoperative Atelectasis. F. Christopher, Evanston, Ill., and J. M. Shaffer, Dayton, Ohio.—p. 197.

Diaphragmatic Hernia: Its Varieties and Surgical Treatment of Hiatus Type. P. E. Truesdale, Fall River, Mass.—p. 204.

Regional Anesthesia: A Few General Considerations. H. S. Ruth and J. A. Stiles, Philadelphia.—p. 217.

Renal Arteriography: Preliminary Report of Experimental Study. R. B. Henline and S. W. Moore, New York.—p. 222.

Simplified Local Vaginal Hysterectomy: Indications and Contraindications. A. Sampolinski, Chicago.—p. 230.

Single Incision, Transabdominal, Extraperitoneal Approach to Lumbar Ganglions. C. E. Rees, San Diego, Calif.—p. 234.

Low Mortality of Early Operation for Perforated Gastric and Duodenal Ulcer. B. T. Tilton, New York.—p. 238.

Delayed Operation in Acute Cholecystitis: Report of 134 Operations on Biliary Tract, Covering a Period of Five Years. H. L. Bass and C. E. Bird, Louisville, Ky.—p. 241.

Nonpadded Plaster Cast for Lower Extremity. R. A. Griswold, Louisville, Ky.—p. 247.

Infections of Parotid Gland: Further Studies on Etiology and Treatment: Sialograms of Normal and Abnormal Glands and Ducts Including Tumors. W. H. Hobbs and H. Sneierson, Binghamton, N. Y.—p. 258.

*Prevention of Gas Pains. L. E. Mahoney, Los Angeles.—p. 272.

Fractures of Shaft and Neck of Femur: Report of 119 Cases. I. E. Siris, Brooklyn, and C. J. Delaney, New York.—p. 277.

Etiology of Cholelithiasis: Experiments of the Author. H. A. Petersen, Houston, Texas.—p. 291.

Contributing Factors of Peritoneal Infection in Closed Incisions of Abdomen. R. M. Harbin, Rome, Ga.—p. 298.

Anorectal Fistula: Anatomic Considerations and Treatment. R. V. Gorsch, New York.—p. 302.

*Modern Method for Prevention of Postoperative Distention: Report of Eighty-Eight Cases. W. R. Levis and E. L. Axelman, Philadelphia.—p. 308.

Protein Metabolism: Disturbances Under Conditions of Shock and Surgical Interference. A. Lurje, Moscow, U. S. S. R.—p. 313.

Frost-Bite. T. Kaplan, New York.—p. 318.

*Autohemotransfusion in Preventing Postoperative Lung Complications. M. W. Mettenleiter, New York.—p. 321.

Application of Adhesive Plaster. G. Zechel, Chicago.—p. 324.

Prevention of Gas Pains.—Mahoney, granting that the operation is well planned and properly executed, believes that the further step to be taken to minimize abdominal postoperative discomfort is a general solid diet, with modifications necessitated by different temperaments and varying conditions. The human intestinal tract is a muscular tube the mucous membrane of which secretes digestive ferments and the motility of which is largely dependent on these ferments and the presence and character of the food material in the intestine. Activity of the liver, the chemical engine of the body, and the secretion of bile is greatly influenced by the amount and the variety of ingested food. Whenever starvation supervenes, and the usual hospital liquid diet is really semistarvation, the bacteria normally present in the intestine increase enormously and produce large amounts of flatus. If lack of the food to which the upper intestine is accustomed continues for more than a very few

hours, those species of bacteria normally resident in the colon and cecum ascend into the ileum and jejunum and there proliferate, giving rise to huge amounts of gas and to symptoms of toxemia from absorption. Practically all successful medical treatments for colonic stasis appear to depend for their efficacy on lowering or modifying the bacterial content of the colon. The factors in health and normal well being that keep down the growth of these organisms are bile, the hydrochloric acid of the stomach and the digestive ferments, powerfully aided by the peristaltic action of the intestine, which endeavors to move the food taken in by mouth as far as the ileocecal valve in about six hours or less. Necessarily if starvation or semi-starvation is added in the form of the usual hospital "liquid diet" to the systemic shock of an abdominal operation, the secretion of hydrochloride acid, bile and the digestive ferments is decreased, or perhaps these activities are altogether abolished temporarily, and in addition peristaltic action is greatly diminished thus the multiplication of putrefactive and gas producing organisms is favored and everything possible is done to produce abdominal distention in the mild case and adynamic ileus in the severe one. Patients are urged to eat solid food soon after operation, usually the next morning. If not nauseated, they are served a tray the evening of the operative day and encouraged to partake of dry toast, jello, cream of wheat and similar articles. Water is permitted by mouth in such amounts as the patient may desire as soon as the nausea has disappeared. By permitting the early ingestion of water, forcing the feeding of solid food and adding to the feces a bulky ingredient which possesses lubricating properties, other beneficial side effects are obtained. Loss of weight is diminished and the fear of the insertion of the needle for administering fluids is abolished.

Prevention of Postoperative Distention.—In reviewing their eighty-eight cases, which form the basis of their report, Levis and Axelman find that dimethyl carbamic ester of hydroxyphenyl-trimethyl ammonium methyl sulfite, the physostigmine derivative (prostigmine) prophylactic, has been most valuable in combating the much dreaded symptoms of postoperative distention and gas pains. In comparing these case records with an analogous series prior to their use of the prophylactic, they have found that distention and gas pains have been reduced to a negligible minimum. Prior to its use fully 60 to 75 per cent of their cases would show either subjective symptoms of gas pain or objective signs of gastrointestinal atony or both. Prior to the use of this product the glandular preparations were generally employed, but the results were not sufficiently uniform to warrant continuation of their use. With inhalation anesthetics, the first injection of the prophylactic is given from three to four hours after operation, followed by a second injection four hours later; four injections are given at intervals of four hours the first day after operation. The last dose is followed immediately by a low soapsuds enema. This technic has proved effective in preventing postoperative intestinal atony. Most gratifying to the patient and the nurse, as well as the surgeon, is the elimination of repeated high compound enemas for the relief of this painful and annoying condition. With this method of administering the prophylactic peristalsis has been established within twenty-four hours after operation, whereas prior to its use in abdominal cases peristalsis was not established until after a period of forty-eight and in some cases seventy-two hours. Its use has not been attended by any untoward effects by way of systemic or local reaction, the blood pressure is not affected and cardiac action is not interrupted in any way.

Postoperative Lung Complications.—Mettenleiter employed autohemotransfusion in 300 surgical cases, injecting 20 cc. of fresh blood intramuscularly immediately after operation. No lung complications, such as postoperative bronchitis or pneumonia, were observed. Only one patient developed a small thrombotic area in one lung five days after operation. The operations performed were gastro-enterostomies, cholecystectomies, appendectomies, hysterectomies, ovariotomies, herniotomies, thyroidectomies, mastectomies, and the like, under general anesthesia with gas and ether, tribrom-ethanol as base and local anesthesia. The absence of lung involvements indicates that autohemotherapy and not the type of anesthesia applied accounted for the good results. There is sometimes a negligible amount of blood left in the wound, and it has been suggested that the absorption of this blood may render an additional autotransfusion unnecessary. The physiochemical changes in the whole blood and in the serum are so delicate and occur so rapidly that no comparison can be made between blood drawn from a vein and reinjected intramuscularly and blood left in a wound to be absorbed. These two processes are entirely different.

Archives of Internal Medicine, Chicago

57: 837-1060 (May) 1936

Clinical Observations on Nontropical Sprue. A. M. Snell, Rochester, Minn.—p. 837.
Effect of Total Thyroidectomy in Man: Laboratory Studies and Observations of Clinical Effects in Thirty-Nine Cases. M. T. Schnitker, L. H. Van Raalte and E. C. Cutler, Boston.—p. 857.
Experimental Renal Insufficiency Produced by Partial Nephrectomy: IV. Creatine Content of Hypertensive Hypertrophied Hearts of Rats Fed Whole Dried Meat. A. Chanutin and S. Ludewig, University, Va.—p. 887.
Cooperative Clinical Studies in Treatment of Syphilis: Cardiovascular Syphilis: I. Uncomplicated Syphilitic Aortitis: Its Symptomatology, Diagnosis, Progression and Treatment. H. N. Cole, Cleveland, and Lida J. Usilton, Washington, D. C.—p. 893.
Id.: II. Syphilitic Aortic Regurgitation: Its Treatment and Outcome. H. N. Cole, Cleveland, and Lida J. Usilton, Washington, D. C.—p. 910.
Id.: III. Aneurysm: Its Symptomatology, Diagnosis, Treatment and Outcome. H. N. Cole, Cleveland, and Lida J. Usilton, Washington, D. C.—p. 919.
Mechanism of Acute Experimental Heart Failure. T. R. Harrison, B. Friedman and H. Resnik Jr., Nashville, Tenn.—p. 927.
Optimal Time to Administer Insulin. A. Sindoni Jr., Philadelphia.—p. 949.
Classification of Chronic Gastritis, with Especial Reference to Gastroscopic Method: Study Based on 1,200 Cases. R. Schindler and Marie Ortmayer, Chicago.—p. 959.
*Roentgenologic Observations on Various Types of Chronic Arthritis. G. D. Taylor, Montreal; A. B. Ferguson, H. Kasabach and M. H. Dawson, New York.—p. 979.
Medullary Tumor of Adrenal Glands, with Hypertension and Juvenile Arteriosclerosis. D. N. Kremer, Philadelphia.—p. 999.
*Disturbance of Action of Respiratory Muscles as Contributing Cause of Dyspnea. A. Cournand, H. J. Brock, I. Rappaport and D. W. Richards Jr., New York.—p. 1008.
*Daily Variation of Sugar Content of Blood and Urine During Treatment of Diabetes Mellitus. F. L. Rogers, Lincoln, Neb.—p. 1027.
Presence in Normal Human Urine of Reticulocyte-Stimulating Principle for the Pigeon. G. E. Wakerlin and H. D. Bruner, Louisville, Ky.—p. 1032.
Liver and Biliary Tract: Review of Certain Recent Contributions. C. H. Greene, New York.—p. 1039.

Roentgenologic Observations in Arthritis.—Taylor and his associates selected for roentgen study, because of characteristic clinical and laboratory observations, fifty-nine cases of rheumatoid arthritis, thirty-two of osteo-arthritis, twelve of gout, eleven of gonococcic arthritis, thirty-two of tuberculous arthritis, eleven of rheumatoid spondylitis (Marie-Strümpell) and eleven of Still's disease. Systemic decalcification was present throughout the skeleton in 95 per cent of the cases of rheumatoid arthritis but was best seen in the bones of the hands and feet. Atrophic destruction of bone was noted in 85 per cent of the cases. Marked production of bone, with lipping or osteophytes, was noted in all the cases of osteo-arthritis. Swelling of the soft tissues was present in 67 per cent of the cases of gout, effusion in 75 per cent and atrophic destruction of bone, or punched-out areas, in 83 per cent. In the early stage of gonococcic arthritis, swelling of the soft tissue is usually marked; it subsides within a few days or a few weeks. Local decalcification and slight effusion were noted in 64 per cent of the cases and decreased in the later stages of the disease, in which 82 per cent of the patients showed narrowing of the joint space, 36 per cent a moderate degree of active destruction of bone and 45 per cent comparatively early healing with fibrous or bony ankylosis. In tuberculous arthritis, regional decalcification was present in 78 per cent of the cases and local decalcification in 72 per cent, and both persisted through the entire course of the disease. The roentgenologic observations in the cases of rheumatoid spondylitis were similar to those noted in cases of rheumatoid arthritis, except for the anatomic distribution. Systemic decalcification was present in 100 per cent of the cases. The roentgenologic observations in Still's disease were identical with those noted in cases of rheumatoid arthritis. There was, however, the frequent additional presence of epiphyseal overdevelopment because of the younger age

of the patients. The shadows made by the soft tissues are of the utmost importance in the differential diagnosis of the various forms of chronic arthritis. For example, the swelling of the soft tissues in cases of gout is so characteristically eccentric to the joint that it is possible to make a reasonably certain diagnosis on the basis of this one feature. To determine the degree and extent of changes in the soft tissue, it is necessary to have anteroposterior and lateral views of corresponding joints of the extremities. Atrophic destruction of bone occurs as frequently in rheumatoid arthritis as it does in gout. However, the size of the areas in rheumatoid arthritis is rarely as large as that seen in gout in an advanced stage. Roentgenograms may show little or no change in the early stages of rheumatoid arthritis, osteo-arthritis, rheumatoid spondylitis (Marie-Strümpell), gout, Still's disease or tuberculous arthritis. In the early stages of gonococcic arthritis, however, the roentgenograms are frequently of the greatest assistance in establishing a diagnosis. The appearance of a joint with gonococcic involvement of a duration of six weeks may closely resemble the appearance of a joint with tuberculous involvement of a duration of six months. The results of the study offer considerable evidence in support of the clinical conception that rheumatoid arthritis, Still's disease and rheumatoid spondylitis (Marie-Strümpell) are intimately related. The roentgenologic picture of Still's disease has been found to be identical with that of rheumatoid arthritis in adults, while the picture presented by rheumatoid spondylitis (Marie-Strümpell) differs from that of rheumatoid arthritis only in the anatomic distribution of the articular involvement. Rheumatoid arthritis and osteo-arthritis appear to be distinct entities on roentgen examination. Even in cases in which the two types occur in the same patient or even in the same joint it is usually possible to demonstrate the characteristic changes of each type of arthritis in the roentgenogram. There appears to be some relationship, as yet unexplained, between gonococcic infection and the arthritic changes observed in the metatarsophalangeal joints, certain types of calcaneal spurs and some types of spondylitis. An occasional puzzling case has been encountered in which the presence of a gonococcic infection has apparently modified the appearance of coexisting rheumatoid arthritis. No single roentgenologic feature is a diagnostic criterion for any one type of chronic arthritis.

Respiratory Muscles and Dyspnea.—Cournand and his co-workers show that, in one particular form of pulmonary fibrosis, dyspnea during mild exertion was apparently due in large part to a hypertonic state of the respiratory muscles and to a disturbance of the normal synergic relations between various groups of them. If their deductions are correct, this disturbance of action of the muscles of respiration takes its place among the numerous other factors which contribute to the causation of dyspnea and adds further to the general concept of dyspnea as a subjective sensation brought on whenever the mechanical apparatus for respiration is unable to provide easily the pulmonary ventilation required by the person's immediate physicochemical and metabolic state.

Variation of Blood and Urine Sugar During Treatment of Diabetes Mellitus.—Rogers determined the daily quantitative variation in the sugar content of the blood and in the amount of sugar excreted in twenty-four in cases of diabetes mellitus. In nine cases the variation was slight; in seven it was marked enough to interfere with satisfactory treatment when the injections of insulin were given before meals. The variation consisted in an early morning rise in the blood sugar content, a parallel rise in the amount of sugar excreted and an afternoon fall in both. Meals did not seem to affect the curves. As a rule the variation was found in young patients with severe diabetes, while older patients with milder forms of the disease often failed to show it. The administration of insulin in anticipation of the early morning rise has resulted in more satisfactory control than could be obtained otherwise, but there was no evidence that the total requirement of insulin could be reduced by this method of administration, as stressed by Möllerström. A single dose of insulin given in anticipation of the peak failed to control the condition adequately throughout the twenty-four hours. One patient showing the variation was restudied after a year and similar variability was found, indicating permanence. Accurate establishment of the existence of a definite and constant early morning rise in the blood sugar level should always precede the giving of large doses of insulin in the early morning.

Journal of Bacteriology, Baltimore

31: 441-574 (May) 1936

Kinetics of Lysis of Escherichia Coli. C. E. Clifton and G. Morrow, Palo Alto, Calif.—p. 441.

Dissociation and Lactase Activity in Slow Lactose-Fermenting Bacteria of Intestinal Origin. A. D. Hershey and J. Bronfenbrenner, St. Louis. —p. 453.

Bacteriophage as Related to Root Nodule Bacteria of Alfalfa. S. C. Vandecaveye and H. Katznelson, Pullman, Wash.—p. 465.

Action of Aldehydes on Certain Cultures of Streptococcus Liquefaciens in Milk. B. W. Hammer, Ames, Iowa.—p. 479.

Effect of Chemical Constitution of Soaps on Their Germicidal Properties. M. Bayliss, Minneapolis.—p. 489.

Rice Bran Extracts and Growth of Micro-Organisms. R. W. Dunn and A. J. Salle, Berkeley, Calif.—p. 505.

Status of Generic Term Bacterium Ehrenberg 1828. R. S. Breed and H. J. Conn, Geneva, N. Y.—p. 517.

Conditions Affecting Production of Toxin and Porphyrins by Diphtheria Bacillus: Note. Mary W. Wheeler and M. O'L. Crowe, Albany, N. Y. —p. 519.

Incidence and Significance of Presence of Borrelia Vincenti and Other Spirochaetaceae on Beverage Glasses. D. C. Lyons, Jackson, Mich. —p. 523.

Experimental Poliomyelitis Induced by Intracutaneous Inoculation: Strain of Virus Apparently Peculiarly Infective When Injected by This Route. J. D. Trask and J. R. Paul, New Haven, Conn.—p. 527.

Suggested Standard Method for Investigation of Electrophoresis. L. S. Moyer, New Haven, Conn.—p. 531.

Oxygen Uptake of Marine Bacteria. F. H. Johnson, Princeton, N. J. —p. 547.

Studies on Anaerobic Bacteria: IX. Antigenic Relations of Clostridium Bifermentans and Clostridium Centrosporogenes. Elizabeth McCoy and L. S. McClung, Madison, Wis.—p. 557.

Journal of Clinical Investigation, New York

15: 241-334 (May) 1936

*Studies on Hypochromic Anemia in Dogs: I. Evaluation of Standard Bread Diet and of Meat Diet on Formation of Hemoglobin Before and After Gastrectomy. F. Kellogg, S. R. Mettier and Katherine Purviance, San Francisco.—p. 241.

Adenoma of Pancreatic Islet Cells with Hypoglycemia and Hyperinsulinism: Report of Case with Studies on Blood Sugar and Metabolism Before and After Operative Removal of Tumor. S. H. Liu, H. H. Loucks, S. K. Chou and K. C. Chen, Peiping, China.—p. 249.

The Volume of Extracellular Fluids of Body. P. H. Lavietes, J. Bourdillon and K. A. Klinghoffer, New Haven, Conn.—p. 261.

Studies of Variations in Antistreptolysin Titer of Blood Serum from Patients with Hemorrhagic Nephritis: I. Control Observations on Healthy Individuals and Patients Suffering from Diseases Other Than Streptococcic Infections. W. T. Longcope, Baltimore, with technical assistance of C. Skala.—p. 269.

Id.: II. Observations on Patients Suffering from Streptococcic Infections, Rheumatic Fever and Acute and Chronic Hemorrhagic Nephritis. W. T. Longcope, Baltimore, with technical assistance of C. Skala.—p. 277.

Effect of Epinephrine on Blood Lipoids of Normal Man. E. F. Gildea and Evelyn B. Man, New Haven, Conn.—p. 295.

*Observations on Fate of Sodium Sulfate Injected Intravenously in Man. J. Bourdillon and P. H. Lavietes, New Haven, Conn.—p. 301.

Comparison of Electrophoretic Mobilities and Sedimentation Velocities of Red Cells from Normal and Pregnant Human Subjects. Betty R. Monaghan, C. Wegner and H. L. White, St. Louis.—p. 313.

Effect of Toxemias of Pregnancy on Renal Function. C. A. Elden, F. D. Sinclair Jr. and W. C. Rogers, Rochester, N. Y.—p. 317.

*Parathyroid Hormone in Blood of Pregnant Women. B. Hamilton, Laura Dasef, W. J. Highman Jr. and C. Schwartz, Chicago.—p. 323.

Concerning Naturally Occurring Porphyrins: IV. Urinary Porphyrin in Lead Poisoning as Contrasted with That Excreted Normally and in Other Diseases. C. J. Watson, Minneapolis.—p. 327.

Relationship of Diet, Digestion and Hemoglobin in Hypochromic Anemia Before and After Gastrectomy.—Kellogg and his co-workers determined the relationship between diet, digestion and hemoglobin production by producing an artificial gastric achylia in the dog by gastrectomy and hypochromic anemia by repeated bleeding. The feeding of beef to dogs having a hypochromic anemia induced by bleeding resulted in a marked rise in hemoglobin output. When, however, the stomachs of these dogs were removed and anastomoses made between the esophagus and the duodenum, the regenerative power of hemoglobin was apparently greatly reduced. Before gastrectomy the output of hemoglobin averaged 1.95 Gm. daily, while the dogs were on the beef diet, whereas after the operation there was an average output of only 0.08 Gm. It seems probable, therefore, that the gastrectomized dogs are unable to obtain from beef substances essential to the synthesis of hemo-

globin. The weekly withdrawal of from 100 to 200 cc. of blood containing from 10 to 20 Gm. of hemoglobin over a period of from three to eight months was necessary before the reserves were depleted—a total of approximately 400 Gm. of hemoglobin. These figures varied somewhat with the individual animal. The amount of hemoglobin appears all the more significant when compared to the total hemoglobin in circulation. Such a dog, at a weight of 16 Kg., may have a circulatory blood volume of 1,200 cc. If his hemoglobin level is 50 per cent, 12×0.42 equals 70.8 Gm. of hemoglobin in circulation. The authors' normal dogs on a beef diet may be expected to produce this amount of hemoglobin in five weeks. From the experiments it would appear that, once an anemia is induced and the iron reserves are depleted, this state will persist when normal gastric secretion is lacking. Clinically, this suggests that any process depleting iron stores, such as deficient diet, prolonged and profuse menses and frequent pregnancy, in a patient with achlorhydria may lead to a hypochromic anemia, owing to the failure to get from food and to utilize properly hemoglobin-building materials.

Fate of Sodium Sulfate Injected Intravenously.—Bourdillon and Lavietes investigated the fate of sodium sulfate in hypertonic solutions injected intravenously in man as regards its diffusion into body fluids, its effect on some of the electrolytes of blood and its excretion. The subjects were healthy men and women and patients with chronic nephritis. Doses injected ranged from 1.3 to 20 Gm. and were in most cases accompanied by sodium thiocyanate. In some cases, potassium thiocyanate was given orally twelve hours before. The sodium ion and the sulfate ion were excreted at the same rate, and the amount of salt injected could probably be recovered totally in urine. The rate of sulfate excretion appeared to be simply proportional to the concentration of sulfate in serum. The figures obtained for the diffusion of sulfate suggest that, like thiocyanate, it is distributed only in the interstitial fluid. The larger doses of sulfate were found to cause usually a dilution of interstitial fluid and a shrinkage of red corpuscles, these phenomena being interpreted as a readjustment of the osmotic equilibrium, necessitated by the fact that neither sulfate nor sodium can penetrate cells.

Parathyroid Hormone in Blood of Pregnant Women.—Hamilton and his associates determined the amount of parathyroid hormone in the blood of women by observing the rise of the rabbit's serum calcium after the injection of woman's blood. Of the thirty nonpregnant cases twenty-seven gave either a decrease, no rise or a very small rise in the rabbit's serum calcium. Quite similar results were obtained with the blood from women pregnant less than fifteen weeks. Abnormally great rises were obtained when the blood of women pregnant from fifteen to twenty-four and twenty-four to thirty-four weeks was injected, indicating that during this period of pregnancy an increase in the amount of parathyroid hormone present in the blood is rather common. Toward the end of pregnancy, however, this is much less common, as only three out of thirteen cases showed an abnormal rise, and still more rarely does such a response occur during the lactating period of from six to eight weeks. A curve based on these studies gives an approximate idea of the degree of hyperparathyroidism during different periods of pregnancy. According to Hoffmann the most potent extract can be prepared from the blood of women in the tenth month of pregnancy; the authors' observations indicate that the blood is richer in parathyroid hormone during the seventh month than at any other time, and that in the tenth month the hormone content has usually returned to normal amounts. The curves of a comparison between the calcium requirements of the fetus and the nursing infant and the parathyroid hormone content of the blood of pregnant and lactating women show a rough parallelism; on the whole they are both rising until the thirty-fourth week of pregnancy. At that time, however, they diverge sharply, the hormone content returning to normal, while the calcium requirements show a marked increase. It is possible that the increasing demands of the growing fetus with respect to calcium furnish a stimulus to the parathyroids. If this is true, during the last weeks of pregnancy and during lactation this stimulus, for some unknown reason, ceases to be effective; also during this period there seems to be some tendency toward true tetany with lowering of the serum calcium. It is probable that in the presence of an abnormal calcium metabolism (as in rickets) or unusual demands on the calcium metabolism (as in pregnancy) an insufficient amount of hyperactivity might also result in tetany.

Journal of Lab. and Clinical Medicine, St. Louis

21: 775-882 (May) 1936

Bacteriologic Studies of Urine, Utilizing Selective Method of Culturing. M. Solis-Cohen, Philadelphia.—p. 775.
Weight Loss of Tubes of Certain Pathogenic Fungi Growing on a Specific Medium. J. W. Williams and L. Green, Cambridge, Mass.—p. 785.
Hemoglobin Values in Normal Adults Over a Period of Time. Winifred Ingersoll, Madison, Wis.—p. 787.
Studies on Trichomonas Vaginalis in Vitro. H. A. Shelanski, Philadelphia.—p. 790.
Meningitis in a New-Born Infant Due to Slow Lactose-Fermenting Organism Belonging to Colon Bacillus Group: Case. M. E. Mulhern and W. B. Seelye, Seattle.—p. 793.
Phosphorus Metabolism: VI. Changes and Relationships in Blood Phosphorus of Rats Subjected to Blood Regeneration by Repeated Bleedings. G. E. Youngburg and Mamie V. Youngburg, Buffalo.—p. 798.
*Methods for Determining Erythrocyte Permeability. J. Koopman and I. D. Falker, New York.—p. 808.
Leukopenic Index: II. Concerning Nature of Food Sensitization in Intractable Allergic Diseases. H. J. Rinkel, Kansas City, Mo.—p. 814.
Safely Induced Fever Therapy in Diabetic Individual. B. Y. Glassberg, St. Louis.—p. 820.
Selective Elimination of Neutral Red Through the Gastric Mucosa: Experimental Approach. S. Morrison, R. E. Gardner and D. L. Reeves, Baltimore.—p. 822.
*Importance of Oxyntic Cell in Pernicious Anemia. S. Morrison, Baltimore.—p. 828.
Adaptability of Lidberg Paraffin Embedding Oven for Various Types of Tissue Work. C. L. Mattas, Scranton, Pa.—p. 830.
Method for Measuring Fragility of Erythrocytes in Salt Solution. R. T. Beebe and E. P. Hanley, Albany, N. Y.—p. 833.
Diagnosis of Carcinoma of Stomach from Fragment of Tumor Obtained During Routine Gastric Analysis. L. G. Jekel, St. Louis.—p. 836.
Method of Staining Protozoa in Bulk. W. S. Stone, Washington, D. C.—p. 839.
Rapid Presumptive Diagnosis of Lymphogranuloma Inguinale: Specific Intradermal Test with Antilymphogranuloma Inguinale Goat Serum. J. T. Tamura, Cincinnati.—p. 842.
Comparison of Ziehl-Neelsen and Spengler Technics of Staining Tubercle Bacillus. H. Wald and Charlotte C. Van Winkle, Oak Terrace, Minn.—p. 844.
Frozen Stopcocks. C. E. Scovern Jr., Chicago.—p. 847.
Comparison of Mediums for Plating Lactobacillus Acidophilus. D. B. Sabine, Yonkers, N. Y.—p. 848.
Method of Three Color Photography: Adapted to Photomicrography, Lantern Slides and Paper Prints. O. R. Hyndman, Iowa City, and T. Putnam, Boston.—p. 850.
Inexpensive Laboratory Timing Device. N. A. David and R. A. Lincoln, Morgantown, W. Va.—p. 860.
Improved Electropolygraph. R. A. Waud, London, Ont.—p. 864.
Muscle Nerve Stimulating Accessory for Harvard Kymographs. O. G. Harne and C. E. Butts, Baltimore.—p. 869.

Methods for Determining Erythrocyte Permeability.—Koopman and Falker developed rapid tests for determining the permeability of erythrocytes to any substance that does not react with them. 1. The substance to be tested is dissolved in physiologic solution of sodium chloride. This solution is added to washed erythrocytes. If the cells are permeable to the substance tested, after the substance enters the cells, on the sudden addition of a large quantity of physiologic solution of sodium chloride, hemolysis will take place. Hemolysis will take place only when after the addition of physiologic solution of sodium chloride the difference between the amounts of substance outside and inside the cell causes sufficient pressure within the cells to burst them. 2. When the molar weight of any solute in water equals or exceeds the molar weight of physiologic solution of sodium chloride, the osmotic pressure of such solutes is adequate to prevent hemolysis, excepting in those instances in which erythrocytes are permeable to the solutes. In these instances the rate of hemolysis is directly proportional to the permeability of the erythrocytes. These tests are not applicable to substances which either injure or fix the cells. The authors think that hemolysis is an all-or-none phenomenon and that cells hemolyze in hypotonic solutions because of the pressure of the electrolytes in the cells rather than the absorption of water by the cells.

Importance of Oxyntic Cell in Pernicious Anemia.—Morrison has been able to demonstrate that neutral red is eliminated selectively by the oxyntic cell of the stomach and that its quantitative excretion runs parallel with the hydro-

chloric acid secretion, i. e., it appears earlier and is excreted in larger quantities in hyperchlorhydrias than in hypochlorhydrias or normal acidities. Neutral red excretion also differentiates true from false achylias, because it appears in the latter but not in the former. These results have been so definite that they have been used clinically; the correlations were made on human beings. His work leads him to believe that the intrinsic factor is a product of the oxyntic cell not only because its secretions parallel one another in the overwhelming majority of cases of pernicious anemia but also because neutral red is eliminated by the oxyntic cell and is at the same time absent only in true achylia. An understanding of the function of this cell may elucidate the mechanism of the production of pernicious anemia.

Kansas Medical Society Journal, Topeka

37: 177-220 (May) 1936

Food Allergy. H. J. Rinkel, Kansas City, Mo.—p. 177.
Factors Determining Time of Operation on Patients with Hyperthyroidism. C. A. Gripkey, Kansas City.—p. 184.
*Precancerous Dermatoses. J. G. Missildine and J. V. Van Cleve, Wichita.—p. 187.
*New Departure in Treatment of Typhoid Group Infections. M. O. Nyberg, Wichita.—p. 190.
Malignant Thyroid Adenoma in Lung Causing Empyema. J. E. Wolfe, Wichita.—p. 191.
Congenital Heart Deformity. J. G. Evans, Kansas City.—p. 193.

Precancerous Dermatoses.—Missildine and Van Cleve point out that the term "precancerous" is attached to a group of skin manifestations which, if followed to the end product of their development, may result in malignant degenerative tumors of the skin. A great many lesions, such as verruca seborrhoeica and keratosis senilis, although clinically benign, already show malignant degeneration of their cellular constituents when examined under the microscope. Included in this group are keratosis senilis, verruca seborrhoeica, leukoplakia, radiodermatitis, xeroderma pigmentosum, cornu cutaneum, the precancerous melanoses, kraurosis vulvae and Bowen's precancerous dermatosis. With the exception of Bowen's disease, all the foregoing are truly precancerous. Recent investigation tends to show that this disease starts as true cancer cells and should be excluded from the precancerous classification. Other investigators contend that many cases are on record in which malignant degeneration occurred only years after the first appearance of the disease, and that it should continue to be considered precancerous. Only early recognition and proper treatment of precancerous lesions will substantially reduce the incidence of this dreaded disease. It is often impossible to detect lesions of the viscera, but those of the skin or orificial mucosa can be easily recognized and most of them can be treated successfully.

Treatment of Typhoid Group Infections.—When the diagnosis of typhoid or of paratyphoid A or B is established, Nyberg gives the patient 10 cc. of a 1 per cent solution of mercurochrome intravenously. He gives one 3 grain (0.2 Gm.) enterically coated tablet of mercurochrome every four hours orally. Eight hours following the intravenous injection of mercurochrome 1,200 cc. of physiologic solution of sodium chloride is given intravenously. Not less than one hour should be consumed in administering it. This treatment is repeated daily for three days; the tablets are given for two weeks longer before stool cultures are made and, if the stools remain positive for typhoid or paratyphoid organisms their administration is continued. Two cases are reported in which treatment was successful.

Michigan State M. Society Journal, Grand Rapids

35: 293-358 (May) 1936

Surgery of Childhood. G. C. Penberthy, Detroit.—p. 293.
Incidence, Differential Diagnosis, and Immediate and Remote Prognosis of Toxemias of Late Pregnancy. C. H. Peckham, Baltimore.—p. 301.
Do the People of Michigan Want a Guaranty of Good Medical Service? H. H. Cummings, Ann Arbor.—p. 309.
Teaching and Learning. J. E. Davis, Detroit.—p. 311.
Human Botryomycosis: Case Report. N. E. Aronstam, Detroit.—p. 315.
Cornification of Glans Penis: Review of Literature: Case Report. O. Van Der Velde, Holland.—p. 317.
Diseases of the Prostate Gland. G. J. Thompson, Rochester, Minn.—p. 320.
Hypertension: Etiology and Effects. F. A. Weiser, Detroit.—p. 323.
Uterus Didelphys. A. W. Sanders, Detroit.—p. 326.
Cancer Survey of Michigan. F. L. Rector, New York.—p. 328.

Military Surgeon, Washington, D. C.

78: 329-412 (May) 1936

Field Chlorination of Water: Factors Influencing Use of Stable Calcium Hypochlorite in Water Sterilizing Bag. L. A. Fox.—p. 329.
Experimental Resurvey of Basic Factors Concerned in Prophylaxis in Syphilis. J. F. Mahoney.—p. 351.
Captain Ezra Z. Derr, Medical Corps United States Navy, Retired: The Last Medical Officer of Old Ironsides. L. H. Roddis.—p. 363.
Cigarets as Cause of Irritation. W. F. Greenwald.—p. 366.
Mosquitoes of Fort DuPont, Del. D. W. Cairns.—p. 369.
The Medical Reserve Corps. B. Friedlaender.—p. 387.
Dr. William Beaumont (Extracted from: "The Old St. Louis Arsenal"). M. A. Reasoner.—p. 389.

Minnesota Medicine, St. Paul

19: 269-342 (May) 1936

Treatment of Overflow Incontinence of Neurogenic Vesical Dysfunction. C. D. Creevy, Minneapolis.—p. 269.
Radiation Therapy. R. G. Allison, Minneapolis.—p. 274.
Mortality in Appendicitis: Study of Two Hundred and Twenty-Nine Cases Taken from Surgical Services of the Ancker Hospital. E. M. Jones, St. Paul.—p. 278.
Tarsal Scaphoid Fractures and Subastragaloid Joint. R. L. Gorrell and F. L. Wilson, Stuart, Neb.—p. 280.
Ankle Joint Fractures. O. W. Parker, Ely.—p. 284.
Physiologic Factors Relating to Surgery of Colon. L. M. Larson, Minneapolis.—p. 289.
Myoclonus Epilepticus in Children: Report of Case. E. H. Harris, Hubbard Woods, Ill.—p. 293.

Nebraska State Medical Journal, Lincoln

21: 161-200 (May) 1936

The Autopsy. G. W. Covey, Lincoln.—p. 161.
Protamine Insulinate: Preliminary Report. F. Conlin, Omaha.—p. 165.
Present Status of Tests for Acute Alcoholism. B. C. Russum, Omaha.—p. 167.
The Future in the Practice of Medicine. M. C. Smith, Curtis.—p. 172.
Fractures and Dislocations of Cervical Spine. H. F. Johnson, Omaha.—p. 175.
Diagnosis and Treatment of Anemia: V. Hemolytic Anemia. J. C. Sharpe, Omaha.—p. 179.
The Doctor and His Education. W. J. Hammill, Omaha.—p. 181.
Cardiac Clinic Number II: Rheumatic Heart Disease, Etiologic Factors and Incidence. C. E. Thompson and F. W. Niehaus, Omaha.—p. 185.
Carcinoma of Penis. M. Emmert, Omaha.—p. 187.

21: 201-240 (June) 1936

*Prevention and Treatment of Scarlet Fever. J. P. Koehler, Milwaukee.—p. 201.
New Activities of the State Medical Society of Wisconsin. R. M. Carter, Green Bay, Wis.—p. 209.
The Future in the Practice of Medicine. M. C. Smith, Curtis.—p. 212.
Classification and Nonsurgical Treatment of Cataract. D. D. Sanderson, Lincoln.—p. 216.
Diagnosis and Treatment of Anemia: VI. Aplastic Anemia. J. C. Sharpe, Omaha.—p. 219.

Prevention and Treatment of Scarlet Fever—Koehler considers the following a successful, safe and practical program for the control of scarlet fever: 1. An intelligent quarantine, based on scientific knowledge and practical experience instead of on tradition and expediency, should be established. 2. All school children less than 7 years of age should be isolated during a serious scarlet fever epidemic for at least six weeks unless such children are immune to scarlet fever as shown by a negative Dick test. 3. All susceptible children in homes with scarlet fever should be immunized as soon as they have passed the incubation period. Statistics show that approximately 25 per cent of all scarlet fever cases are secondary cases in families developing during or after release from quarantine of the primary case. Permitting infectious convalescent scarlet fever patients to return to their homes without the susceptible children in such homes having been immunized first is nothing short of criminal, and yet that is what is being done. 4. The value of throat cultures should be honestly appraised. If a negative throat culture does not always mean that a former patient is no longer infectious, the patient as well as the members of his family should be so informed instead of all being given a false sense of security. At the present time, cultures are not sufficiently reliable to justify unrestricted confidence in them. 5. An intensive scarlet fever immunization program should be in effect for all susceptible children similar to the present diphtheria and smallpox preventive programs. 6. Scarlet fever convalescent serum should be available for the treatment of the more severe types of scarlet fever cases.

New England Journal of Medicine, Boston

214: 913-960 (May 7) 1936

What We Have Learned from the Toad Concerning Hypophyseal Functions. B. A. Houssay, Buenos Aires, Argentina, South America.—p. 913.

Study of Use of Coramine in Dealing with Effects of Barbituric Acid Derivatives. P. G. Schube, Dorchester Centre, Mass.—p. 926.

Frequency of Active Tuberculosis in Hospital for Mental Diseases, with Especial Reference to Schizophrenia. D. Rothschild and M. L. Sharp, Foxborough, Mass.—p. 929.

Congenital Defect of Pectoral Muscles. R. R. Little, North Reading, Mass.—p. 934.

Acute, Ulcerative, Terminal Ileitis and Colitis: Case Report. T. F. Corriden, Northampton, Mass.—p. 936.

New York State Journal of Medicine, New York

36: 757-842 (May 15) 1936

Stutter-Type Personality and Stuttering. J. S. Greene, New York.—p. 757.

Diagnostic Significance of Pain. F. J. Kalteyer, Philadelphia.—p. 766.

Nails and Their Diseases. M. J. Cantor, Brooklyn.—p. 773.

Clinical Pathologic Study of Meningitis. M. Helfand, New York.—p. 781.

Hypothyroidism. H. L. Frosch, New York.—p. 785.

*Studies in Eczematizing Properties of Soaps. J. W. Jordon, H. L. Walker and E. D. Osborne, Buffalo.—p. 791.

The Problem of the Broken Hip. J. J. Moorhead, New York.—p. 796.

Simple, Inexpensive Apparatus for Producing an Artificial Pneumothorax. N. Strauss and G. H. Kojac, Bronx, New York.—p. 801.

Study of One Hundred Cases with Administration of Drug (Salipyrine) Containing the Benzene Ring. C. H. Nammack and Nielsina Thorsteinson, New York.—p. 803.

Advantages of Single Beginning Diabetic Diet for Adults. J. R. Scott, New York.—p. 805.

The Gloved Hand Forearm Splint in Treatment of Colles Fracture. N. H. Rachlin, Brooklyn.—p. 807.

Physical and Physiologic Growth as Factor in Child Adjustment. I. S. Wile, New York.—p. 809.

Institutional Outbreak of Bacillary Dysentery Park-Hiss Type: Case Report. I. Miller, Port Richmond.—p. 813.

Acute "Reflex" Bone Atrophy (Sudeck's Disease): Short Summary of Literature and Two Typical Cases. E. K. Cravener, Schenectady.—p. 815.

Between Mental Health and Mental Disease. B. Liber, New York.—p. 820.

Eczematizing Properties of Soaps.—Jordon and his associates performed 2,300 patch tests on 115 patients with dilutions of 1:100 and 1:400 of eight widely used toilet soaps and two laundry soaps. Approximately 14 per cent of individuals with normal skins reacted to dilute soap solutions. A positive patch test, therefore, does not always mean that an individual will develop an eczema when exposed to a substance giving such a test. Approximately 50 per cent of the subjects with a dermatitis reacted to dilute soap solutions. Four of seven individuals with other forms of allergy reacted to dilute soap solutions. These results indicate that polysensitivity is common among eczematous patients and that a careful history of allergy is of great importance in the interpretation of patch tests. A soap dilution of at least 1:100 and preferably also a dilution 1:400 should be employed in the performance of the patch test. Mild erythema without papules or vesicles should not be regarded as a positive reaction. The alkali content of soap in solution is of minor importance in the production of eczema. The fatty acids formed on hydrolytic dissociation together with the many miscellaneous ingredients of soaps, most of which are known eczematizing agents, seem the most likely etiologic factors in the production of eczema due to soap. Soaps are definitely the cause of some cases of contact eczema and a contributing factor in many others. Patch tests properly performed and interpreted should be of great aid in the diagnosis of soap eczema.

36: 843-898 (June 1) 1936.

The Clinician's Function in Medicine. Horder, London, England.—p. 843.

The Problem of Tuberculosis. K. Fischel, Saranac Lake.—p. 849.

Surgical Motion Pictures Simplified. B. M. Bosworth, New York.—p. 856.

Silicosis: Diagnostic Difficulties. E. Mayer, New York.—p. 857.

Silicosis: Present Knowledge Summarized for Practicing Physician. D. M. Brumfiel, Saranac Lake.—p. 861.

Petrous Pyramid Suppuration: Histopathology. J. G. Druss, New York.—p. 869.

*Treatment of Vincent's Angina with Acetarsone. C. H. Maxwell Jr., Auburn.—p. 874.

Treatment of Vincent's Angina with Acetarsone.—Maxwell treated fifteen cases of Vincent's infection of the gums or fauces with 10 per cent arsphenamine in glycerin, locally, plus a mouthwash and gargle of sodium perborate. Results were satisfactory in all but two cases. Twenty-eight patients received acetarsone by mouth, in addition. All made recoveries distinctly more rapidly than when acetarsone was not used. Thirty-six cases were treated with acetarsone by mouth, mercurial solution usually being employed locally in addition to a sodium perborate mouthwash. Recovery was as rapid as in the preceding group. Ten cases were treated only with acetarsone by ingestion and as a paste gently massaged into the affected part. All improved rapidly. The most rapid recoveries were in this group. One chronic case of gingivitis previously unsuccessfully treated with neoarsphenamine intravenously improved but was not cured with acetarsone.

Northwest Medicine, Seattle

35: 163-202 (May) 1936

Response of Body to Infection: Immunity and Fever. L. A. Crandall Jr., Chicago.—p. 163.

Surgical Treatment of Tumors of Posterior Fossa. P. G. Flothow, Seattle.—p. 168.

Roentgen Therapy in Malignancy: Its Indications and Limitations. F. E. Butler and I. M. Woolley, Portland, Ore.—p. 172.

Hopeful Aspects of Rheumatism. C. P. Wilson, Portland, Ore.—p. 175.

Carpal Fracture Dislocation. D. G. Leavitt and H. L. Leavitt, Seattle.—p. 178.

Silicosis Pneumoconiosis: Its Clinical and Industrial Aspects. H. M. F. Behneman, San Francisco.—p. 180.

Incidence of First Infection Type of Tuberculosis in Children. J. A. Myers, Minneapolis.—p. 184.

Neuroma of Appendix. M. Norgore, Seattle.—p. 188.

Oklahoma State Medical Assn. Journal, McAlester

29: 157-190 (May) 1936

Some Important Contributions to Medical Science by Military Surgeons. R. U. Patterson, Oklahoma City.—p. 157.

Prevention of Complications of Diabetes Mellitus. B. F. Keltz, Oklahoma City.—p. 166.

Recent Advances in Deep X-Ray Therapy. W. E. Eastland, Oklahoma City.—p. 170.

Epigastric Hernia. H. L. Farris, Tulsa.—p. 173.

Convergence Insufficiency. A. W. McAlester 3d, Kansas City, Mo.—p. 175.

Public Health Reports, Washington, D. C.

51: 535-566 (May 1) 1936

Significance of Infant Mortality Rates. M. Derryberry and E. Van Buskirk.—p. 545.

Choice of Rat Poison in Antiplague Work: Rat Poisons Used by the National Antiplague Services of Ecuador, Peru, Chile, and the Argentine Republic. J. D. Long.—p. 551.

Review of Gastroenterology, New York

3: 98-205 (June) 1936

Analysis of Complications Occurring in Series of Patients with Pernicious Anemia. W. P. Murphy and Isabel Howard, Boston.—p. 98.

Rôle of Deficiency Disease in Diseases of Gastro-Intestinal Tract. C. L. Hartsock, Cleveland.—p. 111.

*Acute Gonococcic Perihepatitis: New Syndrome of Right Upper Quadrant Abdominal Pain in Young Women. T. Fitz-Hugh Jr., Philadelphia.—p. 125.

Pathologic Physiology of Icterus: III. Jaundice in Clinical Entities. N. W. Elton, Reading, Pa.—p. 132.

Abdominal Signs and Symptoms of Thoracic Disease. H. Brooks, New York.—p. 143.

The Management of Idiopathic Ulcerative Colitis, So-Called Mucous Colitis and Spastic Conditions of Gastro-Intestinal Tract: Perparin Hydrochloride, a New Antispasmodic Remedy. H. I. Goldstein, Camden, N. J.—p. 150.

Gastrophotography: General Information Concerning Endogastric Photography and Its Technic. J. R. Goyena, J. P. Islenghi and H. Hofmann, Buenos Aires, Argentina, South America.—p. 158.

Acute Gonococcic Perihepatitis.—Fitz-Hugh bases his discussion of the syndrome of acute gonococcic perihepatitis in young women on a study of seven cases. The age incidence was 17 to 34; four were single, two were married and one was divorced; five were seen in private practice and two in ward practice. The chief complaint is invariably severe pain in the right upper part of the abdomen. The presenting symptoms are usually so like those of acute inflammation of the gallbladder that this diagnosis has been entertained by experienced physicians in every case that the author has seen despite the relative youthfulness of these patients. The true nature of the process, however, may be suspected when the background of the story is brought out; viz., during the preceding month or two the

patient has had some low abdominal pain, bloating and nausea, with sometimes slight leukorrhea or dysuria and perhaps a little fever. Usually after a period of a few days to a few weeks quiescence the patient is seized with sudden severe upper abdominal pain, which quickly localizes in the right upper quadrant. It is always worse in front under the rib margin but may also be very intense posteriorly. It is sometimes referred to the region of the right shoulder. Coughing, sneezing, straining, laughing and twisting the trunk make the pain worse. Gaseous distress, belching and nausea are common. Vomiting, malaise, feverishness, headache and night sweats are noted by some. In the acute phase the initial temperature records range from 99 to 102 F. There is always very marked rigidity and tenderness involving the right upper part of the abdomen anteriorly (and sometimes laterally). Limitation of movement of the right diaphragmatic leaflet with signs suggesting right basal pneumonitis and poor aeration of the right pulmonary base may usually be demonstrated. Usually slight tenderness is demonstrable in the lower part of the abdomen. The leukocyte count is normal or moderately elevated. Red cells and hemoglobin are normal or moderately reduced. The sedimentation rate is uniformly accelerated. Smears from the peritoneal exudate are positive for the gonococcus. Smears from the urethra or the cervix were positive for the gonococcus in all cases (except in case 1, in which positive peritoneal smears were obtained). The gonococcus complement fixation test is of no value in these cases. All gave negative Wassermann reactions. Roentgen examination may exclude other conditions, such as right basal pneumonitis, gallbladder disease, renal disease and duodenal ulcer. The etiologic agent is obviously the gonococcus, although cultural identification has not been undertaken. The characteristic lesion is a slightly moist inflammation of the peritoneum of the anterior surface of the liver and the adjacent peritoneal surface of the anterior abdominal wall, with injection of the vessels and a grayish flaky or granular exudate. The acute phenomena of perihepatitis begin to subside within a week or two of onset. The outlook is uniformly good, although reinfection of the perihepatic tissues may occur and "violin-string adhesions" eventuate. Treatment includes rest in bed, precautions against infection, heat locally, liquid diet and sedatives. Later on the pelvic residue of gonorrhea may require gynecologic attention. Acute gonococcic perihepatitis should be considered in the diagnosis of any case of severe acute pain in the right upper quadrant of the abdomen in young women.

Rhode Island Medical Journal, Providence

19: 59-82 (May) 1936

Diaphragmatic Respiration Recorded by Synchronous Pneumograph. A. H. Miller, Providence.—p. 59.

Southwestern Medicine, Phoenix, Ariz.

20: 161-204 (May) 1936

Social-Medical Relationship. J. D. Hamer, Phoenix, Ariz.—p. 161.
The Cardiovascular System in Relation to Surgery. V. C. Hunt, Los Angeles.—p. 163.
Intestinal Obstruction. V. C. Hunt, Los Angeles.—p. 167.
*Adverse Results from Bromide Therapy. A. C. Kingsley, Phoenix, Ariz.—p. 170.
Primary Carcinoma of the Gallbladder: Case Report. W. L. Brown, C. P. Brown and J. L. Murphy, El Paso, Texas.—p. 172.
Traumatic Aneurysm of the Arch of the Aorta with Rupture into Esophagus. M. P. S. Spearman, El Paso, Texas.—p. 174.
Rupture of the Heart. G. O. Bassett and Z. M. Flinn, Prescott, Ariz. —p. 175.
Treatment of Acute Empyema. G. Thorngate, Phoenix, Ariz.—p. 176.
Double Empyema in Child: Drainage: Recovery. C. N. Ploussard, Phoenix, Ariz.—p. 178.
Inferior Midwifery: Case Report. M. K. Wylder, Albuquerque, N. M. —p. 178.
Acute Unilateral Exophthalmus: Case Report. D. E. Brinkerhoff, Phoenix, Ariz.—p. 179.
Relief of Pain in Obstetrics. B. Herzberg, Phoenix, Ariz.—p. 179.
Pecan Kernel in Bronchus of Baby: Bronchoscopic Removal: Death. M. Robb, Phoenix, Ariz.—p. 181.
Extensive Injuries: Case Report. G. French, Phoenix, Ariz.—p. 182.
Allergy Is a Problem for Every Physician. O. H. Brown, Phoenix, Ariz.—p. 183.
Allergy: Problem of Immunity, Digestion, Endocrines and Metabolism. O. H. Brown, Phoenix, Ariz.—p. 184.

Adverse Results from Bromide Therapy.—Kingsley points out that, as bromides are used only for preexisting conditions, mental changes from their use are superimposed on psychoneuroses or psychoses. Alcoholism, beginning dementia paralytica, various toxic states, cerebral arteriosclerosis and general debility are predisposing to bromide intoxication. State hospital authorities have recognized a great increase in bromide mental disturbance, probably the result of the present economic depression. Only recently have laboratory methods been devised by which the bromide in the blood may be correctly estimated. The blood bromide may vary from 2 to 300 mg. per hundred cubic centimeters of blood. Rapidity of elimination of the drug is important. High concentrations may be found even after discontinuance of it, because ingestion of large amounts extended over a long period; 200 mg. soon after its discontinuance means far less than 25 mg. from a month to six weeks later. Cases have been reported in which mental symptoms appeared only after withdrawal, and a few observers suggest that withdrawal should be gradual. The general opinion is that it is safe to discontinue the drug suddenly. Custodial or nursing care is always necessary in the more profound states. The bromide must be withdrawn immediately. Thorough elimination should be established and proper nourishment, fluids and sodium chloride from 12 to 16 Gm. daily, should be given. About 1 Gm. of sodium chloride neutralizes 5.8 Gm. of bromides.

Wisconsin Medical Journal, Madison

35: 329-412 (May) 1936

Silicosis: Some Remarks on Nature of Condition in Man. N. Enzer, Milwaukee.—p. 345.
Silicotuberculosis: Roentgenologic Aspects of Differential Diagnosis. J. E. Habbe, Milwaukee.—p. 349.
The Silicosis Problem: Some Medical and Social Phases. O. A. Sander, Milwaukee.—p. 354.
Some Problems Relating to the Care of the Insane in Wisconsin. G. E. Seaman, Winnebago.—p. 361.
*Serial Pyelography. S. J. Silbar and H. B. Podlasky, Milwaukee.—p. 365.
Postmortem Examinations in the Practice of Medicine. H. E. Robertson, Rochester, Minn.—p. 370.

Serial Pyelography.—Silbar and Podlasky worked out a method of serial pyelography based on the precepts laid down by Thomas D. Moore. The apparatus used may be constructed for approximately a dollar and consists of a metal pan and two sheets of lead. The pan and lead sheets should be so designed that they conform to whatever Bucky diaphragm one has in the x-ray department. The measurements are important because it is necessary to center properly in order to avoid grid lines from the Bucky and also to avoid distortion. The technic is that of catheterization of the ureters and kidney, the catheter being inserted to just within the pyelo-ureteral junction. Then 4 cc. of a 40 per cent solution of sodium iodide is used. Sodium iodide in this strength is preferable because it may be used in small amounts, thereby avoiding the distortion accompanying the injection of large amounts of weak mediums. The patient is put in the Trendelenburg position, and 2.5 cc. of the solution is injected into the pelvis. Then 2.5 cc. is injected as the catheter is slowly withdrawn from the ureter and bladder. A period of two minutes is allowed to elapse before the first film is taken with the patient in the horizontal position. Another one is taken in two and one-half minutes and the last two and one-half minutes later. This may be varied so that one or more of the films may be taken in an expiratory phase and others in an inspiratory phase. If ptosis is to be considered, the patient may have his first picture taken in the Trendelenburg position and the second in the upright, as the apparatus lends itself to any movement of the Bucky. The method is of value because: 1. It shows the kidney, ureters and bladder in both respiratory phases. 2. Anatomic parts can be seen filled and emptied. 3. Each kidney and ureter may be safely studied serially and separately, while the other half of the body is protected by lead. 4. Owing to the small areas exposed, details of kidney outlines seem to be improved. 5. Permanent visualization of deformities or defects being always an asset, it is possible to be more certain about the presence or location of ureteral strictures or kinks. 6. Exposures to show defects that are suggestive of pathologic changes can be repeated. 7. The patient remains in one position during the examination. This is helpful when it is necessary to make comparison of all serial films.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

11: 49-96 (April) 1936

Further Observations on Pink Disease. J. V. Braithwaite.—p. 49.
Oxydase Reaction of Human Milk. O. S. Rougichitch and E. Dumitrescu.—p. 61.
Epituberculosis. M. de Bruin.—p. 65.
*Encephalography in the Investigation of Certain Cerebral Conditions in Childhood: Part I. Members of the Staff of the Royal Aberdeen Hospital for Sick Children.—p. 77.
Diagnosis of Pulmonary Middle Lobe Disease in Children. A. M. Gill and J. E. G. Pearson.—p. 87.

Encephalography in Childhood Cerebral Conditions.—The members of the staff of the Royal Aberdeen Hospital for Sick Children state that in the interpretation of encephalograms of cerebral lesions the following should be considered: 1. The size of the ventricles, whether increased on one or on both sides. Increase in the size of the ventricles may be of an obstructive nature, owing either to the presence of a lesion which prevents the free egress of cerebrospinal fluid or to failure of the absorbing mechanism, so that the whole cerebrospinal circulation is stagnant. On the other hand, it may be of a compensatory type and result from an attempt to take the place of an atrophic area of the ventricular wall. In the first type, the dilatation will obviously be bilateral and symmetrical; in the second, the dilatation is apt to produce a pouching of one ventricle, over an area corresponding to the loss of cerebral substance, an appearance which has been termed "wandering" ventricle. Space-occupying lesions in the hemispheres will produce lateral deviations of the ventricular system. 2. The size of the basal cisterns, which is increased in cases of failure of absorption of the cerebrospinal fluid. 3. The distribution of the pathways over the hemispheres; whether this is more extensive (for example, encroaching on the occipital lobe) or partly absent, in areas of adhesive leptomeningitis. 4. The width of the pathways over the hemispheres. Normally this is about 3 mm. When convolutional atrophy is present, it may be greatly increased.

British Journal of Anæsthesia, Manchester

13: 89-140 (April) 1936

Anesthetics in Thoracic Surgery, with Especial Reference to Lobectomy. I. W. Magill.—p. 92.
Anesthetic Deaths in Melbourne, 1929-1934. G. Kaye.—p. 110.
Combined Evipan-Novocain Anesthesia. G. Bankoff.—p. 128.

British Journal of Surgery, Bristol

23: 697-900 (April) 1936

Radiography of Duodenal Cap. G. R. M. Cordiner and G. T. Calthrop.—p. 700.
Encrustation of Bladder as Result of Alkaline Cystitis. H. G. Letcher and N. M. Matheson.—p. 716.
Spontaneous Rupture of Extensor Pollicis Longus Tendon Associated with Colles Fracture. T. Moore.—p. 721.
Solitary Plasmocytoma of Long Bones. J. T. Chesterman.—p. 727.
*Bladder Function in Spinal Injury. K. H. Watkins.—p. 734.
Spinal Tumor: Case. T. Satakopan and N. M. Rao.—p. 760.
Carcinoid Tumor of Lower Ileum. W. Q. Wood.—p. 764.
Colloid Tumor of Urachus Invading Bladder. R. C. Begg.—p. 769.
Illustrating Latency of Large Renal Calculi and Their Relation to Pregnancy: Two Cases. J. Cook.—p. 773.
Duodenal Diverticulum Removed by Operation: Three Cases. H. N. Fletcher and L. I. M. Castleden.—p. 776.
Fractures of Neck of Femur. R. Watson-Jones.—p. 787.
Cystadenoma of Pancreas: Two Cases. R. M. Janes.—p. 809.
Prostatectomy with Closure: Addenda and Some Observations. S. H. Harris.—p. 816.

Bladder Function in Spinal Injury.—Watkins undertook a study to determine the exact behavior of the bladder in cases of injury to the sacral segments of the spinal cord or cauda equina and also in cases of complete transverse lesions of the spinal cord. The investigation revealed clearly the fundamental importance to bladder function of active sacral spinal segments. The influence of these segments below a complete transverse lesion is such as to promote a perfect reflex micturition, which differs essentially from the normal in its entire independence from voluntary control. The behavior of the bladder in lesions of the conus and cauda equina is evidence of a limited degree of function mediated by the peripheral nerve ganglions. This function is not, however, of itself efficient in evacuating urine from the bladder, for even when the internal sphincter is widely relaxed and the detrusor in contraction there may be no escape of fluid from the bladder. It can only be concluded, therefore, that its peripheral innervation alone determines a very ineffective function of the bladder. It is without doubt the existence of a considerable mechanical resistance in the region of the triangular ligament which deprives this function of the bladder of most of its effect. But it is in virtue of this resistance combined with the patient's ability to expel urine by straining with his abdominal muscles which provides him with the means of living in relative comfort. This patient is therefore in much better circumstance than the patient with a lesion of the transverse cord who, though he has a perfect reflex micturition, is not able to control it.

British Medical Journal, London

1: 827-868 (April 25) 1936

The Problem of Toxic Goiter. J. Morley.—p. 827.
Diagnosis of Physical Disorders in the Insane. Ruby O. Stern, J. McLeman and B. F. M. Bond.—p. 832.
Mental Disorder Associated with Child Bearing. J. S. Harris.—p. 835.
Albers-Schönberg's Disease: Case. J. H. Kretzmar and R. A. Roberts.—p. 837.
Insertion of Smith-Petersen Nail into Femoral Neck. H. A. Brittain.—p. 838.
Myositis Ossificans Multiplex. G. Hamada.—p. 840.

Journal of Anatomy, London

70: 323-446 (April) 1936

Effects of Estrone on Prostate and Uterus Masculinus of Various Species of Primate. S. Zuckerman and A. S. Parkes.—p. 323.
Growth of Reproductive and Endocrine Organs of Guinea-Pig. Ruth Deanesly and I. W. Rowlands.—p. 331.
Anatomic and Histologic Studies of an Intersexual Lesser Shrew (Sorex Minutus L.), with Especial Reference to Effects of Male Hormones on Uterus and Vagina. F. W. R. Brambell and Kathleen Hall.—p. 339.
Innervation of Dentin. W. Lewinsky and D. Stewart.—p. 349.
Comparative Histophysiology of Vertebrate Nephron. P. Gérard.—p. 354.
Variations in Cortical Lipoid of Rabbit Suprarenal with Sex and Age. R. Whitehead.—p. 380.
Studies on Cardiac Anatomy of Elephant: I. Coronary Blood Vessels. W. C. O. Hill.—p. 386.
Skulls from Purari Plateau, New Guinea. F. Wood-Jones.—p. 405.
Observations on Lower End of Femur from American Indians and Modern Canadians. M. A. H. Siddiqi.—p. 410.
Structure and Development of Urethral Sinus in Male White Mouse, with Notes on Its Occurrence in Other Rodents. Kathleen Hall.—p. 413.
Abnormal Pronuclei in the Ferret. W. J. Hamilton.—p. 429.
Union of Certain Epiphyses in Mixed Female Population in Rangoon. J. H. Barrett.—p. 432.
Remnants of Venous Valves in Adult Heart. N. Pan.—p. 435.
Unusual Congenital Malformation: Note. M. N. De and H. K. Dutta.—p. 439.

Lancet, London

1: 987-1046 (May 2) 1936

The Prevention of Cancer. W. S. Handley.—p. 987.
*The Possible Rôle of the Anterior Pituitary in Human Diabetes. O. L. V. de Wesselow and W. J. Griffiths.—p. 991.
Acute Febrile Anemia Due to Dental Sepsis: Case. P. C. Gibson.—p. 994.
Decline and Fall of the Undescended Testis. E. McLellan.—p. 999.
Treatment of Undulant Fever with Fuadin. C. Z. Neumann.—p. 1001.
Staphylococcus Leukocidin (Neisser-Wechsberg Type) and Antileukocidin. Joyce Wright.—p. 1002.
Late Ether Convulsions: Study Based on Four Cases. R. F. Woolmer and S. Taylor.—p. 1005.

The Anterior Pituitary and Human Diabetes.—To obtain insight into the problem of whether the anterior pituitary plays a part in diabetes, de Wesselow and Griffiths studied the effect of a preceding injection of "diabetic" blood as compared with "normal" blood on the response of the rabbit to insulin. The animals were starved for eighteen hours before the experiment. Inspection of the curves shows that after injection of 10 cc. of plasma obtained from nine nondiabetic middle aged subjects and seven young diabetic patients, all but two of whom had been receiving insulin for some time, there was no appreciable alteration in the form of the blood sugar curve during the period following injection of insulin. In the case of sixteen elderly diabetic subjects with abnormally high blood pressures, the majority of whom were overweight (only three were receiv-

ing insulin, the remainder being treated dietetically), however, it would appear that a preliminary injection of the plasma into the animals resulted in an early arrest of the fall in blood sugar after insulin; associated with this premature arrest there was a very definite tendency for the blood sugar to be higher than the control values during the remainder of the experiment. This effect of a diminished fall and a more rapid restoration of the blood sugar after injection of the plasma of these patients was particularly evident in six of the foregoing sixteen patients. During the second period of thirty minutes following the injection of insulin the blood sugar had already begun to rise and after sixty minutes the average blood sugar exceeded the initial value; in these respects the curves obtained after injection of plasma were in sharp contrast to those of the first two groups of patients. The conclusion is that the blood plasma of some elderly, obese, glycosuric patients was found to diminish the hypoglycemic action of insulin in a manner closely resembling that observed by other workers with extracts of the anterior pituitary gland. The knowledge of the metabolic disturbances in diabetes will undoubtedly be considerably extended as the thesis that the anterior pituitary gland and the pancreas act antagonistically in the control of carbohydrate metabolism is developed. It would appear that any alteration in the balance of these opposed influences must lead to abnormal carbohydrate metabolism.

Medical Journal of Australia, Sydney

1: 525-558 (April 18) 1936

Study of Children and Their Diseases. E. H. M. Stephen.—p. 525.
Some Suggestions on the Prevention of Maternal Morbidity, with Especial Relation to Queensland. C. V. W. Brown.—p. 529.
Surgeon Alexander Collie, R. N., 1793-1835. C. Bryan.—p. 537.
The Ultraviolet Component of Sunlight in Sydney. F. W. Clements and H. V. Golding.—p. 540.

Quarterly Journal of Medicine, Oxford

5: 141-286 (April) 1936

*Modified Vanadate Serum Malignancy Test (Bendien-Lowe): Account of Examination of Four Hundred and Fifty Serums. R. E. Jones and D. L. Woodhouse.—p. 141.
Mechanism of Production of Cerebrospinal Fluid: Comparative Study of Sugar, Nonprotein Nitrogen, and Inorganic Phosphorus Content of Blood and Cerebrospinal Fluid. H. Cohen.—p. 159.
Effect of Induced Hyperglycemia on Glucose Content of Cerebrospinal Fluid. H. Cohen and J. Libman.—p. 169.
Glucose Content of Cerebrospinal Fluid After Withdrawal. H. Cohen and J. Libman.—p. 183.
Therapeutic Pyrexia by Means of Short Radio Waves. F. J. Nattrass and S. F. Evans.—p. 187.
*Quinidine Treatment of Auricular Fibrillation. M. Campbell and F. W. Gordon.—p. 205.
Studies in Celiac Disease. Eleanor Badenoch and N. Morris.—p. 227.
Studies in Pneumonia, with Especial Reference to Agglutinins. G. J. Langley, W. Mackay and L. Stent.—p. 251.
Weil's Disease in Fish-Workers: Clinical, Chemical and Bacteriologic Study of Forty Cases. L. S. P. Davidson and J. Smith.—p. 263.

Modified Vanadate Serum Malignancy Test (Bendien-Lowe).—Jones and Woodhouse examined more than 450 serums from patients, approximately half of which were suffering from some type of malignant neoplasm and half from nonmalignant pathologic conditions, together with a few normal serums by the modified vanadate reaction. About 75 per cent of correct diagnoses have been obtained for both classes when all doubtful instances have been rigorously excluded. The results have been examined with regard to the type of precipitation, the age and sex of patients, and notes of typical cases are included in which the vanadate test was found to agree with the observations at postmortem examination or operation, in spite of previous clinical evidence to the contrary. Also some cases are described in which the reaction was found to differ grossly from the pathologic observations. Apart from the value of this serologic test in distinguishing between malignant and nonmalignant conditions, considerable success has been claimed (Lowe) in its application for purposes of prognosis following treatment by observing the response of the patient's serum to the surgical or therapeutic measures adopted, as denoted by the zone of precipitation and the type of ratio evinced during a number of successive serum examinations; it is specially valuable as capable of giving evidence of the recurrence of malignant disease before this has manifested itself clinically. In eight cases repeated examination of the serums were carried out during and after treatment. Although the observations are limited, they seem to afford definite encouragement in this field.

Quinidine Treatment of Auricular Fibrillation.—Campbell and Gordon investigated the after-results of treatment with quinidine in two series of patients, one first treated in 1923-1928 and the other in 1929-1934; almost all have been followed up to December 1934, or until fibrillation recurred. Quinidine restored normal rhythm in 64 per cent of 135 cases. In 34 per cent it is still maintained after an average period of nearly four years. In 30 per cent it was restored, but fibrillation recurred after an average period of two years. In 36 per cent quinidine failed to restore normal rhythm or did so for such a short time that it was of no practical importance. Of the earlier series 25 per cent still maintain normal rhythm after nine years, and 39 per cent of the later series after two years. The duration of fibrillation before treatment, the size of the heart and the etiology are all important in estimating the chance of restoring normal rhythm and of maintaining it for a long period. When fibrillation is present without mitral stenosis or a goiter, the selection of cases may be made more leniently, and under favorable circumstances the rhythm may remain normal for ten years or longer. In 39 per cent it is still maintained after an average of five years. In the fifteen who could be classified as having no signs of heart disease except the arrhythmia, it is still maintained in 70 per cent after the same period. After-treatment is not generally needed for more than three months, but, if relapse occurs on omitting quinidine, a second course should be given and, if successful, quinidine should be continued for longer. In those who have relapsed the average period of restored rhythm was more than two years. Thorough digitalization is important before starting treatment by quinidine. Any infection, even a trivial one, may prevent success. Except for the possibility of embolism, which is not a grave risk, serious complications are rare. Satisfactory results are obtained by paying attention to the absence of congestive failure, of a greatly enlarged heart or of a long history of fibrillation. The case is eminently suitable for treatment with quinidine if there have been no signs of failure, if the heart is only slightly enlarged (less than 13 cm. maximal transverse diameter in a patient weighing about 140 pounds, or 63.5 Kg.), and if fibrillation has been established less than one month. The case is not suitable if there has been gross congestive failure, if any signs of failure persist after treatment with rest and digitalis, if the heart is greatly enlarged, or if fibrillation has been established for six months. The presence of any one of these three usually means that treatment with digitalis should be preferred. When there is mitral stenosis, these conditions must be strictly observed.

Journal of Oriental Medicine, Dairen, South Manchuria

24: 47-62 (April) 1936

Investigations on Amebic Dysentery: IV. Experimental Studies of Amebic Dysentery in Dogs: Second Report. Amebic Dysentery of Dogs in Chronic Stadium and Significances of Dogs in the Spread of This Disease. M. Kubo.—p. 47.
Lymphogranulomatosis Inguinale (Maladie de Nicolas-Favre): Report I. Experimental Studies of Lymphogranulomatosis Inguinale. K. Tasaki.—p. 49.
Id.: Report II. Formol-Gel-Reaction (F. G. R.). K. Tasaki.—p. 51.
Supernumerary Conic Protrusions of Human Premolars. T. Hosaka.—p. 52.
Supernumerary Protrusions in Human Molars, with Consideration of Unknown Protrusions in Japanese. T. Hosaka.—p. 53.
Studies on Trichomonas Vaginalis Donné: VI. Hydrogen Ion Concentration of the Cytoplasm of Trichomonas Vaginalis. K. Matsuda.—p. 54.
Id.: VII. Inoculation of Trichomonas Vaginalis in the Human Vagina. K. Matsuda.—p. 55.
Lithiasis of Vesical Diverticulum. M. Motohata.—p. 56.
Investigations on Amebic Dysentery: VI. Observations of Biologic Characters of Endamoeba Histolytica: Part I. Migration Velocity of Endamoeba Histolytica. M. Yosezato.—p. 57.
Study of Medical Meteorology in Mukden: Part III. Wavelength of Ultraviolet Rays. M. Endo and T. Akazawa.—p. 58.
Operation for Primitive Gallbladder Cancer. T. Nakajima.—p. 59.
Pigment Affinity of Typhoid, Dysentery and Colon Bacilli and Staphylococcus: Part IV. Studies on Vital Staining of Bacteria. K. Fukumoto.—p. 60.
Early Tissue Reactions in Various Intestines of Guinea-Pigs and Distribution of Bacteria, Due to Intravenous Injections of Acid Fast Bacteria. A. Hayashi, Y. Hisamochi and M. Yamamoto.—p. 61.
General Tic: Case. T. Z. Sai, T. Takeno, H. Urabe, T. Nakahara and C. I. Chi.—p. 62.

Gynécology, Paris

35: 257-320 (May) 1936

*Complex Tumor of Female Genital Apparatus. V. Le Lorier and P. Isidor.—p. 257.
Therapeutic Action of Mud Sitz Bath on Erosion of Uterine Cervix. C. Uhma.—p. 281.

Complex Tumor of Female Genital Apparatus.—Le Lorier and Isidor describe a tumor of complex cellular structure of the female genital apparatus. It was associated with morphologic anomalies of nonmalignant nature. The most important observations were evolutionary changes of the uterine glandular epithelium, special characteristics of the epithelium of the tubes, the proliferative tendency of the epithelium of the cystic cavities of the cortex of the right ovary, and the nature of the stroma of the neoplastic uterine and peritoneal buds. On the other hand, the evolution toward the epithelial type of uterine, tubular and ovarian serosa, with a tendency to papillary vegetation, was marked. The existence of adenomatous formations of the myometrium, the particular structure of certain regions of the endometrial epithelium and the existence of a complex formation of the ovarian cortex developing in some regions toward an epithelial type and in others toward a fibroblastic type added to the difficulty of the study. These characteristics led the authors toward the conception that the neoplasm represented an embryonal tumor of renal blastoma type and that the indifferent elements constituted both an evolutionary form of uterine and tubular tumors and disembryoblastic formations. It is, however, impossible to determine the exact manner in which these processes developed.

Lyon Chirurgical

33: 257-384 (May-June) 1936

Lithiasis of Intrahepatic Biliary Passages. P. Santy and P. Mallet-Guy.—p. 257.
*Value of Tourniquet Lobectomies and Pneumonectomies in Exeresis for Bronchopulmonary Cancer. A. Bonniot and M. Dargent.—p. 282.
Immediate Early Cardiac Accidents in Traumatic Arteriovenous Fistulas. Tixier and Arnulf.—p. 297.

Lobectomy and Pneumonectomy in Bronchopulmonary Cancer.—Bonniot and Dargent discuss the tourniquet method of Shenstone as a means of performing extensive removal of lung tissue for bronchopulmonary cancer. Because the intervention must be generous, more extensive removal toward the hilus is preferable to subtotal lobectomy or pneumonectomy with a tourniquet. There are two principal objectives, removal of the ganglions and resection of the bronchi well above the tumor growth. In spite of some of the advantages of this procedure, no cancer involving the lobar bronchi can be treated in this way. Cancers of the bronchial stem and the first centimeters of lobar bronchi are unremovable by tourniquet pneumonectomy. This is a common variety of bronchial cancer, but, with the exceptions given, total pneumonectomy with separate ligation of the anatomic elements by the anterior route allows high section of the bronchial tree and is quite successful. The operation is long and difficult but has given good results in the hands of surgeons who have tried radical procedures against bronchopulmonary cancer.

Paris Médical

1: 461-476 (May 30) 1936

Recurrent and Alternating Ocular Paralyses. J.-A. Chavany.—p. 461.
*Study of Primary Benign Lymphocytic Meningitis. S. Livierato and A. Simoneto.—p. 465.
Malignant Intermediary Anemia: Clinical Forms. P. Chevallier.—p. 467.

Primary Benign Lymphocytic Meningitis.—The clinical picture of the disease observed in five patients by Livierato and Simoneto is similar to that of tuberculous meningitis. The duration of the disease varied from fourteen to twenty-eight days. Lumbar puncture performed from time to time produced a temporary amelioration of the subjective and objective symptoms. All the patients made a complete recovery without residual signs in the nervous system. The cerebrospinal fluid was negative from a bacteriologic standpoint. Inoculation of guinea-pigs for tubercle bacilli also gave negative results. The most remarkable result of the examination of the fluid was the discrepancy between the number of white cells and the quantity of albumin. The lymphocytes were markedly increased, with a tendency to further progression in this direction, while the albumin was either normal or only slightly increased. Blood cultures and examination of the blood for malaria were negative. Intracranial injection of cerebrospinal fluid into dogs and rabbits gave negative results. Because of these observations the authors believe that the disease lies in the class of meningitis close to that of poliomyelitis or epidemic encephalitis.

Policlinico, Rome

43: 955-1010 (May 25) 1936. Practical Section

*Pathogenicity of Chilomastix Mesnili. A. M. Cicchitto.—p. 955.
Large Solitary Fibromyxolipomatous Polyp of Rectum: Case. D. Salsano.—p. 969.

Pathogenicity of Chilomastix Mesnili.—Cicchitto states that Chilomastix mesnili is a pathogenic protozoon. In thirty-one patients (white and Negro) suffering from either gastrointestinal or intestinal disturbances the cause of the disease proved to be a pure Chilomastix mesnili infestation. Flies and beetles are the transmitting agents. The administration of antiprotozoal treatment results in disappearance of Chilomastix from the feces of the patient and in recovery of the latter. Chilomastix mesnili may be harmless in certain cases and conditions, while in others, especially in tropical countries, it may cause, alone or in association with other intestinal parasites, gastrocolonic diseases of different intensity. The number of parasites, their type, the constitution, a diminished resistance of the individual due to intestinal, infectious and recurrent diseases, diet, hygiene and climatic and environmental conditions account for the transformation of a harmless into a pathogenic type of the protozoa and also for the evolution of the infestation. The diagnosis is made by the repeated coprologic examination. Two forms, acute and subacute, are the most frequent. The former is of a colonic dysenteriform type, while the latter, which is the most frequent, has the characteristics of a subacute colitis. Intestinal toxemia, which complicates certain cases of Chilomastix infestation, is due to assimilation of toxic products from the intestinal pathologic flora. Certain parasitic associated infestations, such as those with Blastocystis or Endamoeba coli, give origin to the development of an intestinal syndrome clinically similar to that caused by Endamoeba histolytica. The symptoms of the infestation, especially if it is of a pure parasitic origin, in patients in tropical countries are those of a liver rather than an intestinal disease. There is oxaluria in Chilomastix infestation. Eosinophilia is rare. The presence of anachlorhydria is unrelated to the infestation. Chilomastix, as a pathogenic agent for the development of the gastrocolonic disturbances, stimulates the pathogenicity of the intestinal flora, previously normal, and has a slight mechanical, toxic and irritating action on the intestine, which favors the participation of colon bacilli and enterococci in the evolution of the gastrocolonic syndrome. The administration of acetarsone and chiniofon by mouth and in enemas is the specific treatment.

Rassegna di Studi Psichiatrici, Siena

25: 125-282 (March-April) 1936

*"Bulgarian Treatment" in Neurologic and Psychic Sequels of Epidemic Encephalitis. A. D'Ormea and E. Broggi.—p. 125.
Hallucinations: Second Report. C. E. Roberti and G. Fiore.—p. 151.
Growing of Finger Nails in Diseases of Nervous System. G. Treves.—p. 166.
Liver in Process of Combustion of Alcohol. C. Poli.—p. 206.
Protidemia in Dementia Praecox. M. Contini.—p. 223.
Extracranial Trauma from Accident During Work and Manic-Depressive Psychosis: Case. P. Gori.—p. 239.

"Bulgarian Treatment" in Neurologic and Psychic Sequels of Epidemic Encephalitis.—The history, technic and results of the "Bulgarian treatment" in neurologic and psychic sequels of epidemic encephalitis have been reported for the last two years in several Italian journals. The treatment consists essentially in the daily administration of a 5 per cent decoction of Atropa belladonna in white wine, administered three times a day in doses of 5 cc. to patients under 15 years of age and of 15 cc. to patients over 15. The other constituents of the treatment (pills made of Atropa belladonna root and charcoal and the root of Acorus calamus to be chewed by the patient several times a day to stimulate salivation) are useless. The treatment includes also the administration of a hypotoxic diet, suppression of stimulants, hygienic practices, gymnastics, reeducation of patients and sometimes orthopedic corrections. The statistics of the Italians are high and include

all forms (slight, moderate and grave) of postencephalic parkinsonism and other postencephalic mental and nervous sequels, in all of which the symptomatic benefit of the treatment was more or less marked, except in certain grave cases. D'Ormea and Broggi resorted to the treatment in fifty cases of neurologic and mental sequels of epidemic encephalitis and report 65 per cent of satisfactory results. The effects of the treatment were in accordance with the intensity of encephalitis and of the sequels and also with the duration of the latter. The neurologic symptoms were more benefited from the treatment than the psychic ones. The disappearance of tremor in cases of average intensity permitted some patients to return to trade work. Oculogyric crises did not develop during the administration of the treatment, although in some cases the doses of Atropa belladonna should be given fractionally to avoid their appearance. Choreic movements and spasms did not improve. The better results of the treatment were in hypertonia and its allied symptoms. Psychic symptoms improved only when they were slight. As a rule grave mental disturbances improve slightly or not at all. The treatment is useless in patients having intense articular deformities and muscular degenerations and it is contraindicated in emaciated, cachectic and openly intolerant patients. The possible dangers of intoxication are controllable by careful determination of the optimal individual dose. The treatment is delicate and should be given only in hospitals with the patient under constant supervision. In some cases there is a tendency to lose weight during the treatment, which may be prevented by the administration of intravenous injections of a lecithin preparation or by treatment with iodine. The best results of the treatment are obtained in patients under the age of 20 and in forms of average intensity and of short duration. The treatment is symptomatic, but it is the best of its type given heretofore. The roots of Italian Atropa belladonna give results as satisfactory as those of Bulgarian Atropa, reducing the cost of the treatment in Italy.

Progresos de la Clínica, Madrid

44: 341-424 (May) 1936

Modern Conceptions on Indications for Operation in Renal Tuberculosis. L. de la Peña.—p. 341.
Rupture of Placenta, Hemorrhagic Gestosis and C Avitaminosis. J. Botella Llusiá.—p. 345.
Physiopathology of Digestive Tract. J. A. Sánchez Martinez.—p. 348.
*Circulatory System in Diabetes Mellitus. M. Quero Morente.—p. 374.
Hydrarthrosis and Pathogenesis of Malignant Tumors. L. Alvargonzález. —p. 394.

Circulatory System in Diabetes Mellitus. — Quero Morente studied the circulatory system in eighty-seven patients suffering from diabetes mellitus, all but fourteen of whom were past 40. In the group of seventy-three patients past 40 the following cardiovascular complications had taken place: aortic atheroma with a frequency of 44 per cent, retinitis 8.2 per cent, renal sclerosis 3 per cent, circulatory insufficiency of the extremities 5.4 per cent, gangrene of the extremities 1.3 per cent, hemiplegia 2.7 per cent, and cardiac decompensation 7 per cent. A syndrome of angina pectoris existed in seventeen patients of the group and was of the painless type in six cases (myocardial infarct without angina). Frank arterial hypertension was found in 28.3 per cent of the cases. Changes in the electrocardiogram were seen in fifty-seven patients of the group (a proportion of 78 per cent) 8.2 per cent of which showed the presence of bundle-branch heart block. The author says that young diabetic patients suffer only from metabolic disturbances; they frequently have diminished blood pressure but no cardiovascular complications. Diabetic patients past 40, on the other hand, have hypertension and suffer from grave cardiovascular complications, especially arteriosclerosis. The most frequent types of anginal and myocardial complications are typical angina pectoris, painless myocardial infarct, angina from coronary sclerosis, vasomotor angina from hypertension and angina from the administration of insulin. The roentgenograms most frequently seen are those of aortic atheroma, increase of the transverse diameter of the heart, mitralization of the heart and either dilatation of the organ or diminution of its size. Heart alterations which fail to appear in electrocardiograms taken with the patient at rest make their appearance in electrocardiograms taken after physical exertion. Both hypertension and diabetes originate in a lesion or a dysfunction of the sympathetic diencephalic centers which are concerned with the regulation of blood pressure and of sugar metabolism. Arteriosclerosis originates mainly in hypertension. Age and other metabolic disturbances and dietetic disorders are secondary pathogenic factors of arteriosclerosis. Insulin promotes the utilization of blood sugar by the heart of diabetic patients, but, because of the fact that it causes hypoglycemia and increases the output of blood from the heart, a crisis of angina pectoris may follow its administration. This is a warning of the danger of administering insulin in cases of so-called comatous collapse (which is nothing more than a sudden myocardial insufficiency) or of myocardial infarct without any angina, erroneously diagnosed as atypical diabetic coma. In the two former conditions the administration of insulin results in aggravation of the myocardial disorder and greatly endangers the patient's life.

Revista Médica del Rosario, Rosario de Santa Fe

26: 171-258 (March) 1936. Partial Index

Pathologic Anatomy of Multiple Neurofibromas. J. M. Cid.—p. 171.
*Resection of Subclavian Nerve to Obtain Paralysis of Hemidiaphragm. J. Benzadón.—p. 22.
Elimination of Sodium Methanol Sulfoxylate Through Digestive Tract. T. C. Minnhaar.—p. 228.
Roentgen Visualization of Afferent Loop in Gastrectomized Patients: Clinical Value. J. O. Bustos.—p. 235.
Nonregenerative Agranulocytic Anemia: Case. A. Robiolo and E. A. Travella.—p. 245.

Paralysis of Hemidiaphragm.—Benzadón points out that, according to Goetze's statistics, the motor fibers of the diaphragm pass through the phrenic nerve in only 32 per cent of the cases, and in the remaining 68 per cent through the anastomoses of the nerve, namely, those from the subclavian nerve and, rarely, from an accessory phrenic nerve. The author advises resection of the phrenic, subclavian and accessory phrenic nerves in order to paralyze the hemidiaphragm on the side of the resected nerves. The technic of the operation is easy. It consists in locating and resecting the nerves through an incision from 3 to 5 cm. in length, which is made at two and a half fingerbreadths above the clavicle. The resection includes 3 cm. of the phrenic and 4 cm. of the subclavian nerves. The operation is performed under local epinephrine anesthesia.

Archiv für Kinderheilkunde, Stuttgart

108: 65-128 (May 19) 1936

*Endogenic Reinfection by Bronchial Perforation. K. Dietl.—p. 65.
Cerebellar Tumors with Almost Normal Cerebrospinal Fluid in Children. P. von Kiss and I. Fényes.—p. 71.
Differential Diagnosis in Mute Children. Gertrud Lasch.—p. 78.
Growth Process During Nursling Age. E. Zeltner.—p. 95.
Gold Therapy of Tuberculous Disorders in Children. G. Popoviciu and O. Mihalescu.—p. 112.

Endogenic Reinfection by Bronchial Perforation.—Dietl reports the case of a girl, now 15, who at the age of 8 had given a positive tuberculin reaction without manifestations of tuberculosis. During the spring of 1935 a bronchial perforation developed with circumscribed atelectasis in the left lower lobe. This resulted in endogenic reinfection. The obstructing plug, which contained numerous bacilli, was gradually expelled. The atelectasis subsided and the normal status was apparently reestablished. During the fall of 1935 there developed, as the result of bronchial reinfection, disseminating foci in the left lower lobe and an accompanying perifocal pleurisy. The roentgenogram of one of these foci, with its soft and roundish outline, resembled the usually isolated foci found as a rule in the infraclavicular region and generally referred to as early infiltrate. In this connection, the author points out that the development of the so-called early infiltrate, which at present is generally regarded as the beginning point of the phthisis that progresses from the apex in the caudal direction, has been ascribed by some to a bronchial perforation. In view of this, he raises the question whether the round infiltration in the case under consideration might be an early infiltrate. He thinks that the localization in the lower lobe does not necessarily exclude it and that its appearance favors it. Most early infiltrates (but not all) break down, but in the reported case the infiltrate showed no sign of breaking down. Moreover, the girl had no fever and felt well. The author concludes that it cannot be said definitely that the focus is an early infiltrate, but neither can this be definitely denied. The case demonstrates the mechanism of the formation of a new focus by way of endogenic reinfection.

Medizinische Klinik, Berlin

32: 621-652 (May 8) 1936. Partial Index

Diseases of Deciduous Teeth. K. Rupilius.—p. 621.
*Circulatory and Cardiac Impairments in Case of Carbon Monoxide Poisoning. S. Litzner.—p. 630.
Pemphigus Vegetans in Child. R. Bezecny.—p. 632.
Action of Artificial Respiration. K. Thiel.—p. 633.
New Results in Sphere of Research on Blood Groups. W. Neugebauer. —p. 636.

Carbon Monoxide Poisoning.—According to Litzner, the entire vascular system is more or less involved in cases of carbon monoxide poisoning. The general vascular atony should be counteracted by medicaments for the peripheral circulation. The author thinks that the changes in the heart itself have not been given sufficient attention. He shows that, as the result of the impairment of the vascular supply of the heart, temporary changes develop and also occasionally permanent organic lesions, which may involve the musculature as well as the cardiac conduction system. He describes a case in which sinus bradycardia, arrhythmia and ventricular extrasystole appeared after carbon monoxide poisoning. These changes disappeared again in the course of several weeks. There also existed a dilatation of the left ventricle. The author advises that cardiac changes should be watched for in cases of carbon monoxide poisoning.

Münchener medizinische Wochenschrift, Munich

83: 755-794 (May 8) 1936. Partial Index

Premature Detachment of Placenta. E. Vogt.—p. 755.
*Beriberi in Human Subjects Produced by Excessive Consumption of Sugar. W. Stepp and H. Schroeder.—p. 763.
Blindness and Concussion of Brain. T. Sutter.—p. 766.
*Nonspecific Treatment of Allergy and Protection of Liver. H. Kämmerer.—p. 768.
*Treatment of Flatfoot by Exercise. O. Kolb.—p. 774

Beriberi Produced by Excessive Consumption of Sugar.—After pointing out that beriberi occurs chiefly in eastern Asia and that its classic form is practically unknown in Europe, Stepp and Schroeder mention as the chief symptoms manifestations on the part of the nervous system, paralyses, severe sensory disturbances, generalized edema, cardiac dilatation and gastro-intestinal disturbances. They report the history of a patient with severe retention of water and cardiac dilatation, in whom they finally discovered a relative B_1 avitaminosis. The problem was solved when it was learned from the wife of the patient that for about a year the man had consumed daily from 500 to 1,500 Gm. of sugar. The intravenous administration of vitamin B_1 was followed by diuresis and the patient was freed from his severe thirst. Whereas in the water tests that were made before the medication with vitamin B_1 the patient had retained large amounts of the fluid, he now eliminated the entire amount. The normalization of the water exchange was accompanied by an improvement in the general condition. The edemas and the dyspnea disappeared. The examination of the patient's carbohydrate metabolism failed because he had consumed secretly 500 Gm. of sugar and later had an attack of hypoglycemia. In discussing the pathogenesis of B_1 avitaminosis following excessive intake of carbohydrates, the author cites experimental studies on animals which proved that the addition of pure dextrose to the ordinary foods may produce a B_1 avitaminosis. After showing that in the reported case the disorder was actually a relative beriberi, the authors say that, although B_1 avitaminosis has been produced in animals by the administration of large amounts of sugar, such cases have not been reported as yet in human beings.

Nonspecific Treatment of Allergy and Protection of Liver.—Kämmerer says that the so-called shock organs are not the same in the different species of animals, so that the shock reactions differ. In guinea-pigs, spasms develop in the smooth musculature of the bronchi; in rabbits the pulmonary arteries develop spasms, whereas in dogs the liver is the shock organ: during an anaphylactic attack the liver is congested and there is blood stasis in the abdominal viscera. It is suggested that the capillary endothelium of the liver is affected by the shock and that the shock is elicited by the encounter of an antigen and a reaction body in these cells. In this process the liver cells are supposedly greatly impaired, so that large quantities of histamine-like substances develop. The author assumes that in human subjects it is likewise the liver which plays the chief part during shock or during the defense against foreign antigen. To be sure, the site at which the antigen enters the organism doubtless determines the predominance of the one or the other shock organ. With antigens that enter the human organism by way of the respiratory tract, the capillary endothelium of the lung is doubtless severely involved, whereas the liver is the most severely affected organ in case of food allergy. In case of severe allergic reactions, several organs are involved, as is indicated by the appearance of asthma in case of allergy for egg white. The author shows that investigators on food allergy have demonstrated that enteral sensitization is largely dependent on the functional adequacy of the liver in the digestion of foreign proteins, and that insufficiency of the liver is one of the chief causes of an allergic diathesis. He shows that the liver has a regulatory function in the water exchange and that water tests are a more reliable indicator of the hepatic function than are levulose and dye tests; moreover, the water exchange is frequently impaired in patients with allergic disturbances. He advises that patients with allergic attacks should be subjected to various hepatic tests and that in the treatment of allergic disorders the liver should be given attention. He stresses the importance of dietetic measures, particularly those providing an adequate glycogen supply of the hepatic cell. On the other hand, the diet should restrict animal proteins, alcohol, salt and condiments. He thinks that Carlsbad, Vichy and other waters may prove helpful and that high calcium and vitamin contents of the diet are important.

Treatment of Flatfoot by Exercise.—Kolb calls attention to an exercise first recommended by Silberhorn, which aims at strengthening certain muscles and is most effective with a simple apparatus devised by Silberhorn. The legs must be held apart for a distance of from 15 to 20 cm. This is accomplished by heel holders and a board that is placed between the legs below the knees. The toes are placed in holders to which a ring is fastened, which in turn is hooked onto spiral springs that draw the toes outward. The exercise consists in drawing the toes of the two feet together and then again yielding them to the traction of the springs. During the time the toes are drawn inward, the inside of the foot is lifted up and the sole of the foot is arched. That the muscles which elevate the arch of the foot are greatly influenced by this exercise is indicated by the fact that they are extremely painful at the beginning of the exercises but later this pain disappears. The treatment is most effective in children, but even in adults it is helpful in counteracting the difficulties caused by flatfoot, in that it strengthens the muscles.

Zeitschrift für klinische Medizin, Berlin

129: 637-785 (April 18) 1936. Partial Index

Is There a Serous Hepatitis with Tuberculous Etiology? W. Berger, O. Riml and F. Hausbrandt.—p. 637.
*Hemorrhagic Diathesis and Vitamin C: Demonstration of Hypovitaminoses from Urine. L. Armentano.—p. 685.
Circulatory Insufficiency and Oxygen Deficiency. R. Herbst and K. Manigold.—p. 710.
*Influence of Copper on Carbohydrate Metabolism of Human Subjects. H. Schnetz.—p. 739.
Clinical Electrocardiography: Studies on Behavior of Type of Electrocardiogram in Patients with Emphysema. G. Schlomka and G. Gauss. —p. 760.

Hemorrhagic Diathesis and Vitamin C.—Armentano points out that the spontaneous hemorrhages play an important part in C avitaminosis, especially scurvy, and that, because of this, vitamin C has been used in the treatment of disorders that are accompanied by hemorrhagic tendencies. He shows that there are a number of intermediate stages of hypovitaminosis between the state of normal vitamin supply and scurvy. The reduction of the capillary resistance and of the quantity of cevitamic acid in the urine indicates severe degrees of hypovitaminosis. Milder forms of vitamin deficiency can be detected only by means of tolerance tests with vitamin C. To be sure, not every reduction in the capillary resistance indicates a hypovitaminosis. The hemorrhagic tendency of diabetic patients and apparently also a large number of hemorrhagic diathesis cannot be ascribed directly to a deficiency in cevitamic acid. In tests on normal persons it was found that the administration of cevitamic acid does not increase the number of thrombocytes; this applied also in some pathologic cases. The author points out that, in the course of infectious diseases and after

a one-sided diet has been taken for long periods, a hypovitaminosis may develop that does not necessarily become manifest in a hemorrhagic tendency. In such cases, adequate supplies of vitamin should be given.

Influence of Copper on Carbohydrate Metabolism.—Schnetz studied the influence of orally administered copper on the blood sugar content. He found that in normal persons epinephrine hyperglycemia as well as dextrose hyperglycemia could be inhibited by the daily administration of 20 mg. of copper (in pills). Equivalent quantities of iron were found to exert no influence on these forms of hyperglycemia. The inhibiting effect of copper in the induced hyperglycemias as well as the anti-infectious, antianemic and roborating actions of copper induced the author to try copper medication in several cases of severe diabetes mellitus. He found that with copper therapy the doses of insulin could be greatly reduced, for the sugar content of the blood and the urine declined and the general condition was greatly improved under the influence of copper. The inhibiting action of copper seems to influence only the increased sugar content, for the normal sugar content is neither increased nor reduced by copper medication. The fact that only the increased sugar content is influenced seems to indicate that the effect of copper medication is largely due to the action of the liver. The author gained the impression that individualization of the dosage is highly important in copper medication of hyperglycemia and that the action of copper is restricted to certain degrees of hyperglycemia. In two cases of mild to average severe diabetes, the author found that insulin therapy could be entirely replaced by copper treatment.

Zentralblatt für Gynäkologie, Leipzig

60: 1025-1088 (May 2) 1936

Clinical Aspects of Disgerminoma. G. Döderlein.—p. 1027.
Empyema in Cervical Cyst in Case of Uterus Bicornis Unicollis. R. Freisfeld.—p. 1030.
Ileus as Late Result of Sterilization Operation (Madlener-Walthard). K. Hartmann.—p. 1033.
*Recognition of Overdue Pregnancy. H. von Brücke.—p. 1038.
*Estrogenic Substance in Treatment of Milk Fistula and Mastitis. W. Lindemann.—p. 1045.
*Experimental Adenomyosis Following Interruption of Pregnancy by Curettage in Rabbits. W. Zaleski.—p. 1046.

Recognition of Overdue Pregnancy.—Von Brücke describes the case of a woman who came to the clinic when, according to her statement, 321 days had passed since the last menstruation. She stated that during the last two weeks the fetal movements had become less frequent. However, since the fetus did not show excessive size and since there were no irregularities in the fetal heart action, the woman's statement seemed to lack definite proof and a cesarean section was not suggested. Attempts were made to induce labor by means of hot baths, enemas, castor oil, quinine and pituitary extract, but without success. These measures were continued for two days, but on the third day the fetus died. On the following day labor pains set in and the delivery was terminated by cranioclasis. The author stresses the great importance of roentgenoscopy of the fetus in determining the degree of maturity in cases in which prolongation of pregnancy is suspected but in which the size of the fetus does not indicate it. In the reported case a roentgenogram of the dead fetus after birth revealed that the bone nuclei of the knee joints were much larger than is the case in infants that are born at the normal term, for they were about as large as those found in the second month of life. As past-term infants often die during birth, the author says that a cesarean operation may be advisable but that the medicinal induction of labor should as a rule be tried first.

Estrogenic Substance in Treatment of Milk Fistula and Mastitis.—Lindemann points out that incisions in cases of mastitis often result in the development of milk fistulas. He reports the case of a woman in whom a milk fistula with profuse secretion proved refractory to all therapeutic measures. In the hope of being able to influence the condition by hormone action, the author injected 50,000 mouse units of estrogenic substance intramuscularly. Two days later, the profuse milk secretion showed a considerable decrease and the accompanying eczema a great improvement.

Adenomyosis Following Interruption of Pregnancy by Curettage.—Zaleski subjected ten nonpregnant rabbits to laparotomy, in the course of which he scraped one horn of the uterus with a sharp curet but left the other unimpaired. After from sixty to ninety days he made microscopic studies on the uterus of these animals, but he never detected signs of an adenomyosis. In a second series of experiments he interrupted the pregnancy of seven rabbits by means of curettage. Examinations made from fifty to 240 days later disclosed in four of the seven rabbits foci that greatly resembled adenomyosis. He concludes that his observations give experimental proof that in rabbits the interruption of a pregnancy by means of curettage often results in adenomyosis. Although he admits that animal experiments are not applicable to human subjects without restriction, he thinks that under certain conditions curettage of the human uterus may likewise cause the development of adenomyosis. He recommends clinical observations in this direction.

Wiener medizinische Wochenschrift, Vienna

86: 537-564 (May 16) 1936. Partial Index

*Therapy of Thrombophlebitis and of Thrombo-Embolism. C. Ewald.—p. 537.
Diagnostic Mistake in Renal Calculus Caused by Use of Roentgen Paper. R. Paschkis and F. Fleischner.—p. 540.
Action of Diathermy in Cases of Projectiles in Brain. H. Hoff and P. Schilder.—p. 541.
Protein Therapy in Suppurating Infections. F. Schurer von Waldheim.—p. 543.

Therapy of Thrombophlebitis and Thrombo-Embolism.—Ewald evaluates the various remedies that have been suggested as prophylactics and mentions some predisposing factors. He calls attention to the fact that many of the patients who die as the result of an embolism are of a short, rather obese, type. Cachexia, on the other hand, predisposes a patient to thromboembolism. The diagnosis of the mild, deep venous thromboses, which lead to embolism most frequently, is rather difficult. But these thromboses should be searched for every day, particularly during the first few days after the operation, as they are most likely to develop during this time. To be sure, embolisms occur even in the course of the operation, and in these cases the thrombosis can hardly be ascribed to the operation. The thrombosis may appear with and without signs of inflammation. Recognition is especially difficult in the latter case and careful examination is necessary. Once thrombosis has been recognized, the chief effort should be to prevent the detachment of the ascending clot, for this, and not so much the obstructing portion, presents the danger. Complete rest and correct bedding are of great importance. The author recommends support for the lower part of the legs, so that the knees are bent at a right angle, and elastic bandages. The bandage must be put on with extreme caution. If the embolism has produced a pulmonary infarct, the treatment must follow the rules of internal medicine, but, if the embolism obliterates the pulmonary artery, delay involves danger. Since Trendelenburg recommended excision of the thrombus from the pulmonary artery, the decision on the proper treatment has become rather difficult, because it happens that patients who seemed dead recover without intervention; on the other hand, by an expectant attitude the right time for an intervention may be missed.

86: 565-592 (May 23) 1936

Pathologic Physiology of Formation of Calculi. O. Fürth.—p. 565.
Pathology and Therapy of Electrical Injuries. S. Jellinek.—p. 567.
Experimental Studies on Problem of Cerebral Hypertension. H. Hoff.—p. 569.
*Treatment of Tuberculous Hemoptysis with Parathyroid Extract. K. Fang.—p. 571.
*Blood Chlorides in Malariotherapy. Edith Klemperer.—p. 572.
Therapy of Thrombophlebitis and of Thrombo-Embolism. C. Ewald.—p. 574.

Treatment of Tuberculous Hemoptysis with Parathyroid Extract.—According to Fang, most clinicians differentiate two types of tuberculous hemoptysis, the type that results from the rupture of a larger pulmonary vessel (rhexis) and the type that takes place through the intact vascular wall (diapedesis). Rhexis is frequently refractory to all therapeutic interventions and ends fatally, but in some instances pneumothorax treatment, phrenicectomy or thoracoplasty may be helpful. In diapedesis, however, in which a disturbance in the coagulation of the blood plays a part, hemostyptic remedies are advisable. The favorable results produced by parathyroid extract in various types of hemorrhages induced the author to try this treatment in pulmonary hemorrhages of tuberculous

patients. He reports his observations in 102 cases. The success of the treatment was complete in eighty-one cases, moderate in eight, doubtful in nine and failed completely in four cases of rhexis. The usual mode of administration was by intramuscular injection (rarely intravenously). As a rule, 1 cc. was given three or four times daily. The injections were usually continued for another day after the hemorrhage had ceased. They were always well tolerated.

Blood Chlorides in Malariotherapy.—Klemperer, at the suggestion of Wagner-Jauregg, studied the chloride content of the blood of patients undergoing malariotherapy. Tests were made on the whole blood as well as on the serum. She says that the chloride content of blood and serum was reduced in only a small number of the examined patients. Moreover, this reduction is comparatively slight, so that it can readily be compensated by the reserves of the organism.

Acta Chirurgica Scandinavica, Stockholm

78: 1-288 (May 26) 1936. Partial Index

Filling of Tuberculous Pulmonary Lesions: Technic and Results. N. Backer-Gröndahl.—p. 1.
Percutaneous Nailing of Fractures of Femoral Neck. O. Linden.—p. 28.
Use of Morphine After Abdominal Operations. O. Sjöqvist.—p. 33.
Xanthoma: Two Cases. O. Perslow.—p. 71.
*Embolectomies: Forty-Five Cases. J. Hindmarsh and I. Sandberg.—p. 81.
Intoxication in Intestinal Strangulation: Experimental Study. H. Wahren.—p. 121.
*End Results in Gastric Surgery with Especial Reference to "Resection for Exclusion." S. Friberg.—p. 157.

Embolectomies.—According to Hindmarsh and Sandberg, forty-five embolectomies for embolism of the large vessels of the extremities were performed at the Maria Hospital in Stockholm between 1912 and 1934. Thirty of these were performed by Einar Key, who was the first in Sweden to perform a successful embolectomy, twenty-three years previously. A follow-up study was made of forty patients, on whom forty-five embolectomies were performed. There were fourteen men and twenty-six women. Chronic heart disease was the cause of embolism in 77 per cent of the patients, in six embolism complicated an operation, an obstetric delivery or an infection, and in three the cause was not ascertained. Adequate circulation in the involved limb was reestablished in eighteen patients (58.1 per cent) operated on within the first ten hours after the onset of the symptoms. Normal circulation was reestablished in five (35.7 per cent) of fourteen operated on after this period. Of the forty-five embolectomies, recovery occurred in seventeen (37.8 per cent). In six other cases the local effect was successful but the patients succumbed to the original disease. Thus the embolectomy alone was successful in twenty-three cases (51.1 per cent). These patients have regained normally functioning limbs. The operations failed to save ten patients from a subsequent amputation of the limb. Two thirds of the patients on whom a successful operation was performed did not survive the ten year limit. The authors emphasize that the high early and late mortality rate is due not to the operation of embolectomy but to the original disease.

End Results in Gastric Surgery.—Friberg submits a follow-up study of 398 cases of gastroduodenal ulcer in which operation was performed at the Västerås and Köping (Sweden) hospitals. Particular emphasis was laid on the results in sixty-eight cases in which the operation of "resection for exclusion" had been performed. In this procedure, advocated principally by Finsterer, no attempt is made to resect the ulcer situated in the duodenum or in the pylorus in order to avoid injuring the pancreatic or the common bile duct in the case of a low duodenal ulcer, or because of mechanical difficulties presented by a large callous ulcer. The antrum and a portion of the corpus are resected with the view of lowering the acidity. The continuity is restored by an end to side gastrojejunostomy. The primary mortality for this group amounted to 4.4 per cent, while that for radical resection was 12.6 per cent. There was no instance of a recurrent or of a peptic jejunal ulcer in the group of "resections for exclusion." A permanent cure was obtained in 87.7 per cent, which is as good as that obtained by the method of radical partial gastric resection and better than that obtained by the operation of gastro-enterostomy. No difference in the results was observed in the cases in which the pylorus was resected and those in which it had been retained.

Hospitalstidende, Copenhagen

79: 425-452 (April 28) 1936

*Celiac Disease. Mildrid Andersen.—p. 434.
Blood Picture After Thoracocautery. P. Mourier.—p. 441.

Celiac Disease.—Andersen describes the case of a boy, aged 8, small for his age, red haired and freckled, with a history of digestive disturbances since early childhood and pathologic amounts of fat in the feces. The fasting blood sugar is normal, the blood sugar curve is low after the oral tolerance test with dextrose, abnormally short after intravenous tolerance test and normal after injection of epinephrine. Roentgen examination shows passage too rapid in the small intestine and too slow in the large intestine. There are achylia, marked anemia, low blood pressure, flabby musculature, meteorism of the abdomen and retarded development of the ossification centers. The diagnosis of celiac disease is based on the increased fat elimination and the appearance of the feces before remission and on the typical low blood sugar curve, the symptom complex for idiopathic steatorrhea (celiac disease, tropical and nontropical sprue). Anemia, usually hypochromatic, is constant, and retarded growth is also an important symptom. The disorder occurs predominantly in blond children; in Fanconi's twenty-eight cases, twenty-four of the children were blond, three red haired and one dark. The course is typically remittent, markedly chronic and capricious. The mortality is about one third, death being due sometimes to cachexia, more often to complications. The author is inclined to regard the intestinal disturbance as primary. The abnormal blood curve, low blood pressure, pigmentation, muscular weakness and the delayed appearance of ossification centers and retarded growth apparently point to an impaired function of the anterior lobe of the pituitary, the thyroid and the adrenals; the intestinal disorder is thought to cause disturbances in the little known endocrine apparatus of the duodenum, leading to interruption of the correlation of the organs of internal secretion.

79: 453-480 (May 5) 1936

Injuries to Central Nervous System in the New-Born from Birth Trauma. E. Rydberg.—p. 453.
Technic of Cholecystography. F. Søegaard.—p. 467.
*Contribution to Casuistic Pulmonary Sequestrums. A. Bertelsen.—p. 474.

Pulmonary Sequestrums.—Bertelsen emphasizes that age is a factor in the pathogenesis of pulmonary sequestrums. In fourteen of the eighteen cases found by him in the literature in which the age was specified, eleven belonged in the older age group and three patients were between the ages of 5 and 11. The tendency to thrombosis, possibly due to weakness, is an important factor in some instances; in others the cause may be loosening of lung tissue in closely located pulmonary abscesses. The start, as in his patient, a girl aged 5, is usually a fibrinous pneumonia without crisis, constant high fever and continued pulmonary symptoms indicating a local complication. Diagnosis may not be made until after death, but symptoms of local abscesses may appear and more often empyema may develop. After thoracotomy, spontaneous expulsion of the sequestrum may lead to diagnosis, as in his case. The prognosis is grave. Of the eighteen cases, fourteen were fatal; in two of the cases with recovery the sequestrum was removed spontaneously through a thoracotomy, and in two by operation. The course described may suggest the complication, in which case an attempt should be made to verify the diagnosis by roentgen examination, which may sometimes reveal a sequestrum.

79: 481-508 (May 12) 1936

Paroxysmal Tachycardia of Gallavardin's Type: Case. A. L. Nielsen.—p. 481.
Parkes Weber-Dimitri's Disease: Case. Annie Schondel and L. Laursen.—p. 489.
*Some Chloride Ion Determinations in Cerebrospinal Fluid from Different Parts of Cerebrospinal Cavity, Compared with Blood Serum. H. Christiansen.—p. 496.
Pellagra in Patient with Gallstones: Case. S. Harild.—p. 504.

Chloride Ion Determinations in Cerebrospinal Fluid.—In Christiansen's twenty-three fluids from the cerebral ventricles, eight lumbar fluids and one cistern fluid the lowest chloride value was 413.2 mg. per hundred cubic centimeters, the highest 468.1, most of the values varying from 430 to 450 mg. per hundred cubic centimeters. He says that the results confirm that the chloride content everywhere in the cerebrospinal fluid (in neurologic patients) is about 20 per cent higher than the corresponding values in serum from venous blood from the arm.